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NutraSolutions

Ingredient Co-branding Evolves
page NS3

Latin Cuisine: No Longer Ethnic?
page 55

Winning with Wheat Starches
page 65

The Biotics
page 73

Experimental vs. Comforting Flavor Choices
page 83

Seminar: Breakfast Bars and Cereals 101
page 97

Seminar: Assisting R&D
page 112

Education Online
PF's e-Learning Center
page 54

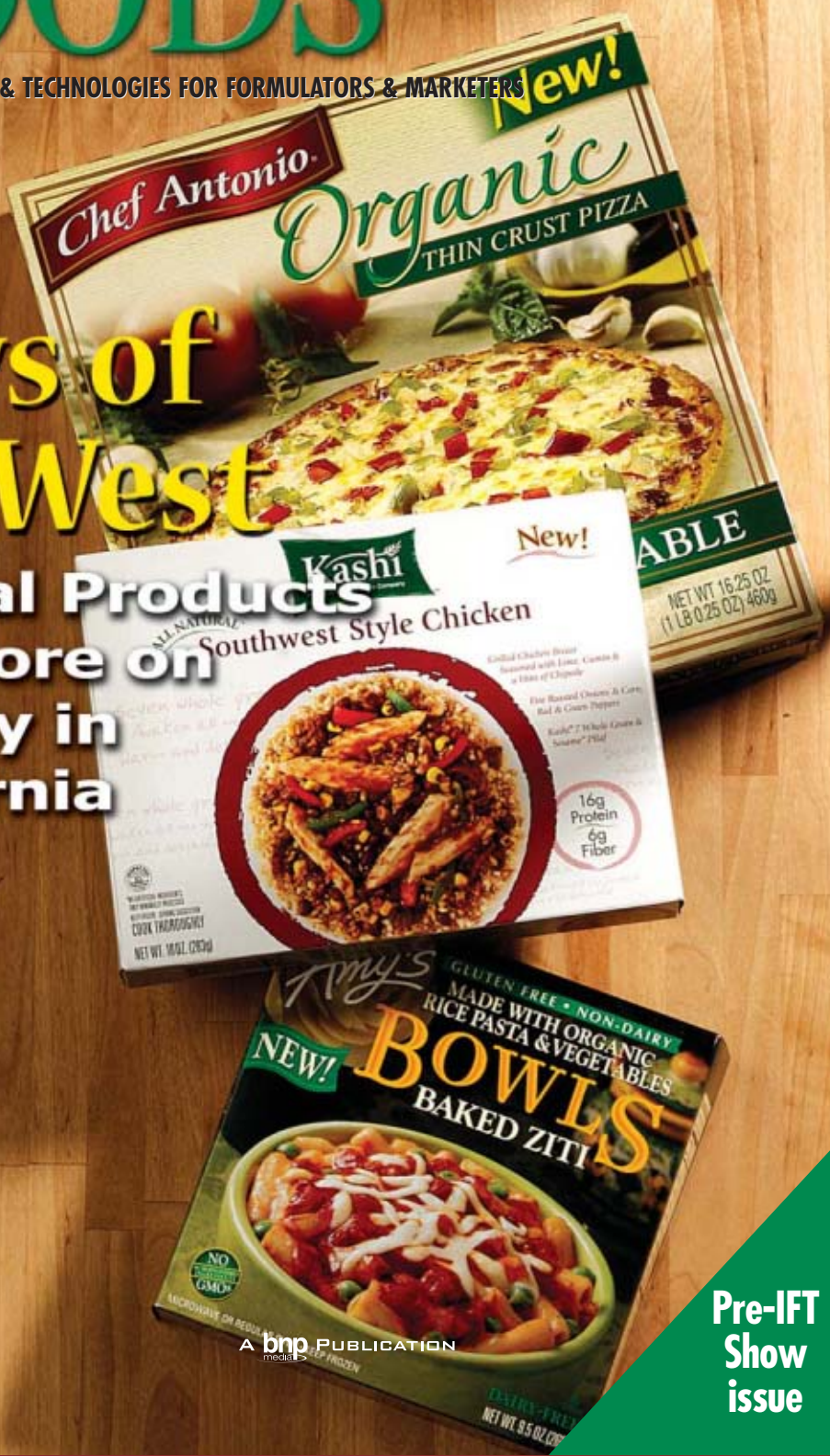
Tell Us About Your New Product
Innovation Wins Big
page 64

Educational Webcast
All About Soy
page 128

Ways of the West

Natural Products and More on Display in California

page 11



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June 2007
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table of contents



Cover photo by TJ Hine

Cover Story: Westward Ho!

11 A record number of attendees were on hand to explore more than 3,000 exhibits at Natural Products Expo West 2007. In the process, they saw the natural/organic industry's latest products attempt to capitalize on trends growing in popularity among consumers.

new product trends

8 Hitting the Shelves
Pure cane sugar as an HFCS alternative; organic Oreo cookies; fiber crackers with flair; frozen organic baby meals; more frozen meals for discerning adult palates.

25 MarketWatch
Slow-melting ice cream treats; restaurant quality sandwich melts from the microwave; fresh and fruity beers; food industry giants pledge to oust trans fat; IRI's list of New Product Pacesetters.

35 Regulations: Corn Oil Claims
FDA approves a health claim relating to corn oil and reduced risk of heart disease and also changes irradiation regulation.

culinary creations

55 Latin Cuisine: No Longer Ethnic?
Latin cuisine is no longer considered ethnic by most American consumers. Restaurants in every area of the U.S. now carry Latin-inspired items on their regular menus, and new items are being added by chefs and embraced by diners.

61 On the National Menu
Mini treats and desserts hit restaurant menus in a big way; macaroni and cheese is made anew with fresh pairings and flavors; beets' versatility lends itself to many menu items; the milkshake is re-invented.

ingredient challenges

65 Winning with Wheat Starches
Waxy and high amylase starches differ in characteristics and functionality. Advice is offered on starch choice, how to avoid formulation issues and how to obtain optimal results.

ingredient challenges

73 The Biotics
As the success of probiotics grows in the North American market, competition increases. The use of prebiotic fibers is also expanding, but research points to how much we still need to learn in order to maximize their use.

83 Experimental vs. Comforting Flavor Choices
Three mega trends drive consumers' flavor preferences—health/wellness, sensory indulgence and homing/comfort. Flavor choices are influenced by product application, eating occasion and consumer characteristics.

r&d applications

97 R&D Applications Seminar: Breakfast Bars and Cereals 101
Known as the most important meal of the day, the breakfast category continues to expand. Attendees of *Prepared Foods*' 2006 R&D seminar learned that consumers are lured to breakfast foods by inclusions like almonds, soy and dairy products, whole grains and more.

112 R&D Applications Seminar: Assisting R&D
R&D staffs face challenges beyond ingredient functionality. Topics such as R&D tax credits, processing parameters for slow churned ice cream, labeling software and food safety proved popular at *Prepared Foods*' 2006 R&D Seminar.

121 R&D Applications: Rice Bran to the Rescue

123 R&D Applications: Tasty Food Also Good for You

124 R&D Applications: Amazing Maize

126 R&D Applications: Dehydrated Vegetables Save Costs

129 Abstracts
Free-flowing powders deliver genuine original ingredient flavor; natural orange flavor; Rambutan-type tropical tastiness; flavor modifier that enhances sweetness; blackberry flavor blasts; dry forms of favorite sauces; texturizing made easy; and more.

nutrasolutions

NUTRA Solutions

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NS3 The Marketing Evolution of Ingredient Co-branding
The marketplace is increasingly populated with a wide range of branded ingredients formulated into supplements and foods. While it can be a smart marketing strategy, crucial factors such as partnership characteristics and distribution channels require careful consideration.

NS10 R&D Applications: A Uniquely Metabolized Oil

NS11 R&D Applications: Protecting Memory

NS13 NutraNews

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Julia M. Gallo-Torres
Managing Editor
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As I was making my son's peanut butter sandwich this morning, I fervently hoped the new jar I had just bought was truly safe. Every time I make a salad, I'm still a bit unsure about eating it, even though I've taken to washing the pre-washed greens again and again. This uneasiness is new for most of us.

Until just a few years ago, the U.S. could boast about having one of the safest food systems in the world, but incidences such as Salmonella in peanut butter have rocked consumer confidence. My husband and I both work in the food business, so perhaps we are more sensitive to these situations than most. However, I don't think we are different than others who also worry about their families' health and wish for better news on the U.S. food integrity front.

The FDA oversees the safety of most of the U.S.'s food system. Long under funded, the agency, charged with regulating 80% of the nation's food supply, has 1,317 field investigators, and only 625 conduct food inspections, according to a *Chicago Tribune* article. The USDA, charged with the other 20% in the form of meat, eggs and poultry, has 7,600 inspectors throughout U.S. meatpacking plants. The lack of resources is rather evident. FDA has asked Congress for $76 million to enhance its ability to monitor produce safety. It also wants to put more stringent rules on produce growers—a move it says could greatly decrease the incidence of food contamination (one cnn.com article states there have been 20 outbreaks of *E. coli* linked to California lettuce since 1995).

Apparently, lawmakers are alarmed enough to also want a change. A bill recently introduced to Congress, the Food Safety Act of 2007, would restructure the FDA in the hope of gaining a food supply free from contaminants.

FDA last month created a new position, assistant commissioner for food protection. David Acheson will help develop "an agency-wide, visionary strategy for food safety and defense," per an FDA press release. His staff includes epidemiologists, biostatisticians and others who will help him determine risks and solutions in an industry filled with new domestic and international challenges.

It is gratifying to see this serious issue is becoming a priority for our lawmakers. It also helps to know that many food manufacturers are judicious in their selection of raw materials, follow good GMPs and generally are rather conscientious about producing safe food products. Thanks to them, most of us will never have to experience the serious effects of food contamination.

Spirit of INNOVATION FOR PRODUCT DEVELOPMENT TEAMS Awards

New Products Needed

Nominations are now being accepted for the Spirit of Innovation Awards, a joint effort by *Prepared Foods* and Ventura Foods to recognize product development teams for efforts in overcoming hurdles, meeting demands and creating innovative products.

Awards will be presented at the *Prepared Foods* 2007 New Products Conference in two categories: Foodservice and Retail. Products should have been released in the 18 months before June of 2007. A panel of industry experts will evaluate each nomination and product on criteria including the need for coordination among the company's departments and/or vendors; the ingenuity of the concept; and sensory quality.

Ventura Foods will make a $2,500 scholarship donation to a university of each winner's choice. In addition, winners receive free registration and accommodations to the *Prepared Foods* New Products Conference, where they will receive their award and offer a brief, five-minute presentation on the product and its development. In addition, two runners-up in each category will also receive free registration to the 2007 New Products Conference.

A company may submit a nomination, or a vendor may do so on a company's behalf. Entry forms and further details are available at www.PreparedFoods-SOI.com.

Hitting the Shelves



Sweet Alternative

High-fructose corn syrup (HFCS) emerged as a common sweetener for U.S. beverages during the late 1970s and early 1980s and has increasingly become a replacement for traditional sugar in a variety of processed consumables. The beverage industry has seen a stronger focus on sugar alternatives beyond popular low-calorie sweeteners such as Splenda, and pure cane sugar is one of these options.

Natural and able to retain the original flavor of beverages, pure cane sugar is refined from sugar cane plants grown above ground. It is claimed to contain trace minerals, making it a preferable alternative to traditional sugar and is gaining popularity in the mainstream, as evidenced in the Jones Soda Pure Cane Soda initiative. The brand has eliminated HFCS in all of its canned sodas; an additional revamp of the entire bottled collection is expected by mid-year. Sources say the company spent over $1 million to reformat its production equipment to use pure cane sugar instead of HFCS.

Organic Sandwiched



Both Kraft and Kellogg did it with their breakfast cereals, and now Nabisco is giving it a try within the snack realm. What are all three of these mainstream companies doing? They are reformulating a few of their most popular food items with organic ingredients.

A variety of Oreo Chocolate Sandwich Cookies from Nabisco is now made with organic flour and sugar. The cookies are free of artificial preservatives, flavors, colors, trans fat and hydrogenated oils.

As with most processed organic food, the reformulated Oreos carry a higher price point than the conventional version, due to higher costs associated with organic ingredients and production. Perhaps these manufacturers can go a step further by using all organic ingredients, allowing the products to be formally certified organic? Such an initiative would give them access to an even broader array of consumers.



Fiber with Flair

Fiber plays an important role in good health, aiding in the proper function of the digestive tract and reducing the risk of chronic health problems (among other things). Sufficient fiber intake can be achieved through several means, from dietary supplements to fruits and vegetables. However, a growing number of alternatives are designed to further appeal to the taste buds.

Kellogg's All-Bran Crackers, for example, are bite-sized baked snacks with a crispy, light texture and the baked-in flavor of roasted garlic and fresh herbs. A spin-off of the company's popular All-Bran cereal, this snack is packed with 5g fiber per serving, which is one fifth of the recommended daily value. This snack is also kosher-certified and sold in a 10oz pack.

Frozen Freshness

Many baby foods on supermarket shelves are heavily processed and packaged in jars, cans and pouches. However, natural products are emerging. Nurture has taken its baby food from the shelves to the freezer case with the launch of its HappyBaby Fresh Frozen Organic Baby Meals.

These meals are "gently" cooked and then frozen, in order to retain the "natural goodness" of the organic ingredients. HappyBaby comes in a tray of 12 cubes filled with food pairings such as pears and sweet potatoes. Suitable for babies aged six months and older, the meals can be prepared in the microwave, on the stove or even naturally thawed while on the go. Each meal is packed with vitamins and nutrients essential to the proper growth and development of babies. Aside from the product's attributes, its tagline provides insight into the direction of the industry: "Think Outside the Jar."

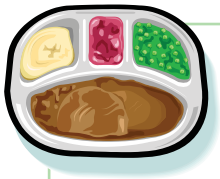




The Reinvention of Dinnertime

The traditional family dinnertime is waning, as busy schedules and lessened culinary skills prevail. The result is that fewer meals are made at home, leaving a huge opportunity for dinner to be sought via restaurants and take-outs. However, families are expressing the need for a wholesome meal at home. To combat these out-of-home dining experiences, manufacturers have increased the production of multi-serve frozen meals. These pre-cooked, complete meals usually include a main dish and a side dish that require minimal preparation or cooking time. According to the "April 2006 Mintel Frozen Meals U.S." report, multi-serve frozen meals account for nearly one fifth of sales and generated significant growth from 2003-2005. This growth is spurred by several market trends, including consumers' need for convenient meal preparation and the quest for a broader flavor palate. The use of international flavors in these meals can replicate the restaurant experience, all in the comfort of the home.

Driving this trend, General Mills announced plans to launch two frozen pasta dinners developed by celebrity chef Mario Batali. These frozen entrées will be available at warehouse retailers such as Costco and Sam's Club with a retail price of $10.99. The Mario Batali meals, which feed an average of five people, will initially be offered in gemelli with meatballs and orechiette with sweet Italian sausage and broccoli varieties. This new collection of meals is suitable for consumers looking for value, confidence from a strong brand name and a portion size feasible for the entire family. An increased demand for frozen meals that are healthy and nutritionally balanced remains.



Frozen in Place

U.S. Frozen Meal Introductions, 2002-2006

	2006	2005	2004	2003	2002
Prepared meals	335	280	474	295	199
Meal centers, pizza and pies	271	232	303	309	273
Meal kits	25	13	18	7	15

Source: Mintel

GlobalTrends

Waking in the middle of the night with hunger pangs could be a thing of the past, or at least that is the goal of Sugarless Nighttime Yogurt, launched in Japan by Nipponluna. The product claims to alleviate hunger in the wake of the night, with half the calories of regular yogurt, 500mg of collagen to maintain good skin and 50mg of relaxation-inducing theanine. Products that control hunger feelings to help reduce snacking for consumers have been seen in the past, but one specifically positioned for nighttime is definitely a new take. The beauty-positioned ingredients, such as collagen and the relaxing theanine, are designed to help consumers have true beauty sleep.

After releasing various bath products such as bathtub crayons that allowed children to draw various soapy designs in their bath, Crayola has more recently teamed with Kellogg to entertain children while eating breakfast. In Mexico, Kellogg's of Mexico released a re-branded cereal under the Kellogg's Froot Loops Crayola brand. Kellogg's Froot Loops Crayola Cereal de Maíz, Trigo y Avena con Sabores Naturales a Frutas Oat is a corn and wheat cereal infused with fruit flavors and enriched with vitamins and minerals. The 550g carton also contains four fruit-flavored Crayola topping packets that can be used for drawing on the cereal and entertaining children. Using toppings to draw or paint designs on food has been seen in some bakery sub-categories; however, its rather innovative use in breakfast cereals will likely keep more than just the kids amused.

Fish, a naturally healthy food, becomes less healthy once processed and covered in batter/breadcrumbs. A number of efforts have sought to preserve the healthy qualities of fish in the coated segment. These include the addition of extra vitamins and minerals, the removal of artificial additives/preservatives or the use of cereal instead of breadcrumbs, which is perceived to be a healthier option. A more recent development has seen wholegrain coatings, in line with increasing consumer awareness of the health benefits of whole grains (reduces the risk of heart disease and diabetes; improves bowel function; offers better weight management). The latest such line is from Findus in Finland: fish fingers made with 11% whole-grain wheat flour.

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Westward Ho!

A record number of attendees were on hand to explore the more than 3,000 exhibits at Natural Products Expo West 2007. In the process, they saw the natural/organic industry's latest products attempting to capitalize on trends impacting the food and beverage industry.

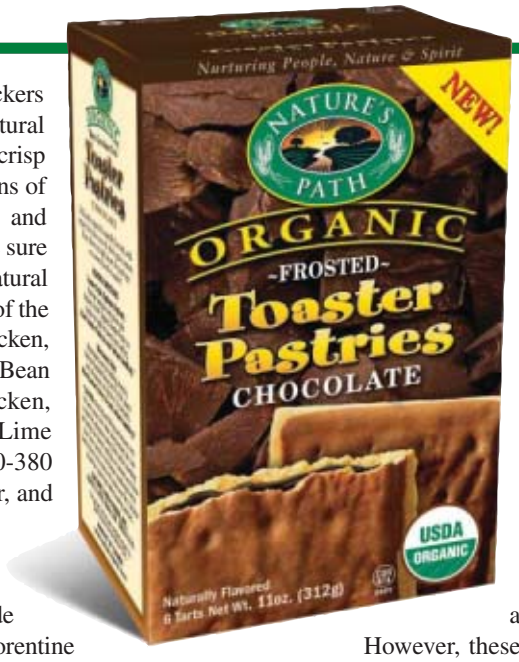
William A. Roberts, Jr., Business Editor

Now in its 27th year, Natural Products Expo West is catering to an industry experiencing sizable growth: according to *The Natural Foods Merchandiser*, natural and organic products sales in the U.S. grew 9.1% across all retail and direct-to-consumer sales channels in 2005. *The Nutrition Business Journal* reports the U.S. organic and natural products industry reached $75.3 billion in 2006.

During one of the show's educational sessions, "Hot New Consumer and Retail Trends: Consumers Seize Control," Jeffrey Nibler explained the breakdown of these sales. Nibler, senior adviser with SPINS, as well as COO and president of Clean Fish, explained that 54% of total natural products industry sales come from two sources: mass retailers (which account for 31%) and natural-focused retailers and independent grocery chains grossing more than $2 million annually (which account for the other 23%). The other 46% of sales are from a variety of sources: smaller naturally focused stores, corner stores, farmers' market-type establishments, Wal-mart (which comprises roughly 8% of total sales), supplement stores, etc.

Nibler explained that natural frozen foods hold particular promise, and it is a niche that Kashi Company, for one, attempted to reach with launches this year. The company—

famous for whole-grain cereals, crackers and bars—debuted Kashi All-Natural Entrées, which combine large-cut, crisp vegetables, whole grains and portions of protein, including chicken, shrimp and black beans. Kashi, of course, made sure to note the six-item line was all-natural and minimally processed. Varieties of the line include Lemon Rosemary Chicken, Chicken Pasta Pomodoro, Black Bean Mango, Sweet and Sour Chicken, Southwest Style Chicken and Lime Cilantro Shrimp—each with 240-380 calories, between 5g and 7g of fiber, and 8g to 19g of protein. Those same characteristics could describe the company's recent extension of that line, which has grown to include Pesto Pasta Primavera, Chicken Florentine and Lemongrass Chicken.



Kashi also announced the launch of a range of all-natural frozen pizzas. They feature a stone-fired "seven whole grain and sesame blend crust complemented with flax seeds providing 260mg of ALA omega-3 fatty acid." Each serving of the pizza provides at least 4g of fiber, 8g of whole grains and 15g of protein. Varieties include Five-cheese Tomato, Mediterranean and Roasted Garlic Chicken.

Likewise debuting for natural foods freezer cases this year was an all-natural pizza under the Wolfgang Puck moniker. With no preservatives or artificial flavors, varieties include Four-cheese, tomato and pesto; Barbecue Chicken; Spicy Chicken; Margherita; pepperoni; and cheese. The company assures they offer gourmet restaurant quality at home, but they serve as only the latest example of natural frozen entries in the meal sector. In the natural supermarkets channel, SPINS reports strong growth for frozen pizza sales: an 8.4% increase over one year ago, to reach $31 million.

As Jeff Johnson, Kashi brand manager and nutritionist, noted, "For today's time-starved consumers, frozen foods represent a fast and convenient meal choice. However, there are very few options on the market that provide good nutrition and lasting nourishment." Nibler concurs, stating he believes the natural frozen foods market could be a $1.5 billion opportunity.

Naturally Aware

Discussing data collected from Information Resources Inc. (IRI), culled from analyses of the purchasing habits of 70,000 to 100,000 households, Nibler found that 98% of the buying public purchased a natural product between 2005 and 2006. In fact, the IRI data indicate organic products are making huge in-roads into American buying patterns. In 2004, household penetration of organics stood at 46%. That number reached 56% in 2005 and hit 60% by the end of 2006.

Data indicate organic products are making distinct in-roads into American buying patterns. In 2004, household penetration of organics stood at 46%. That number reached 56% in 2005 and hit 60% by the end of 2006.

However, these increases are only part of the story. There have been sizable jumps in the actual amount of product that those households are purchasing. Asked to identify how much product was purchased, these households reported buying an extra 9% of natural products and an extra 21% of organic items.

As could be expected, Natural Products Expo West had plenty of new organic foods and beverages to tempt that emerging marketplace. Honest Tea, for instance, is attempting to capitalize on the efforts to introduce healthier products for children. Honest Kids is a line of organic drink pouches launched in May available in Berry Berry Good Lemonade, Goodness Grapeness and Tropical Tango Punch. Each has no caffeine and has been certified organic by Pennsylvania Certified Organic. With 40 calories per 200ml pouch, the beverages have 100% of the recommended daily allowance

Natural products purchasers were asked to identify the single most important reason for purchase. "Overall good health" was the top answer, with 45%.

Organic Growing

Sales of Organic Products

2006	$14 billion
2007	$16.4 billion
2011	$24 billion (estimate)

Source: NMI

Driving Purchases

Overall good health	45%
Higher product quality and taste	12%
Allergies	9%
Health/medical condition	8%

Source: SPINS



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Gourmet and natural, two of the more powerful trends of recent years, have begun to merge, as evidenced by Wolfgang Puck's new line of chef-inspired frozen pizzas.

(RDA) of vitamin C and "less than half the sugar of most kids' drinks, no high fructose corn syrup or artificial flavors." Rather than high-fructose corn syrup, the beverages are sweetened with organic sugar cane.

High-sugar beverages have received negative press in the mainstream media and, as a consequence, parents are demanding lower-sugar alternatives for children's beverages. Honest Kids is an example of one approach to reducing sugar content. Another product, however, reduces sugar content and has perhaps an even more powerful brand behind it.

Crayons is a line of all-natural beverages made with the SugarGuard protection system. The manufacturer, Crayons Inc., describes SugarGuard as an all-natural, scientifically proven, specialized blend of ingredients formulated to lower the overall sugar levels of beverage products and moderate the amount of sugar absorption within the body. Each 8oz can contains 90 calories, but the product is also available in 12oz bottles. The company notes it spent three years developing the beverages, which are made with 33% fewer grams of sugar yet promise a sweetness level that appeals to children. After all, with that powerful brand name on the label, the product had to be kid-friendly.

As Ron Lloyd, president and CEO of Crayons, explained, "Early on, we made the decision to develop all-natural products with superior nutrition; however, with a brand name like Crayons, we had to do it in a fun way."

That fun way does not diminish the healthy attributes of the product. The Crayons beverages are made with 30% real fruit juice and boast 25% of the recommended daily intake (RDI) of vitamins A, D and E, 100% RDI of vitamin C, 12% RDI of fiber and 10% RDI of calcium.

Water Flow

A new water targeted at children also incorporates additional vitamins. Wild Waters, described as the first vitamin-powered, naturally flavored bottled water made just for kids, has "60% to 70% less sugar and calories than the leading sugary juices and soft drinks and is free of…high fructose corn syrup," company representatives explained. Furthermore, the products have been fortified with specific nutrients that the USDA has identified as lacking in children's diets. With 63 calories per 10oz bottle, they include essential nutrients such as calcium, magnesium, potassium, fiber and zinc, as well as vitamins A and C.

However, this was one of many kid-oriented waters on display at Natural Products Expo West. Many opted to include extra nutrients, but Wateroos attempted a different tactic—nothing but flavor. Wateroos were described simply as naturally flavored, unsweetened water—just filtered

Why Access?

Why Consumers are Buying Organic

Health	45%
Taste	26%
Environmental reasons	18%
Because it is available and I like it	11%

Source: "Introduction to the North American Market," Natural Products Expo West Seminar, Anaheim, Calif., 3/8/2007

In Committed Relationship

Natural Product Purchasers and Their Purchasing Patterns

Committed to natural product purchases	2.9%*
Regular	16%**
Transitioning	25%
Trial	55.1%

* drives over 45% of total organic product sales volume
** with committed group, drives over 80% of the organic product sales volume
Source: SPINS

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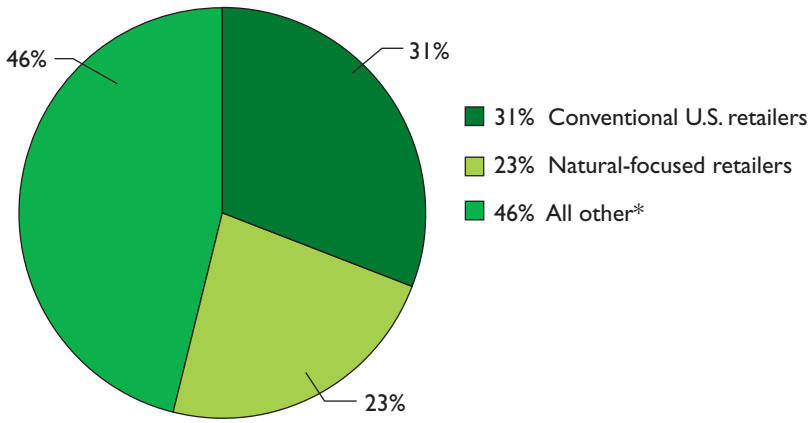


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Channel Locked

Where are natural products selling the best?



Source: SPINS
* Primarily comprised of smaller naturally focused stores, corner stores, herbal, farmers' market-type stores, Wal-mart (which comprises 8%), supplement stores, etc.

Some 54% of total natural products industry sales comes from two channels.

water and natural flavors in a drink box. The company contends that many juices are no better than soft drinks when it comes to sugar content.

To combat that sugar content, many parents have taken to diluting juice with water when giving their children a beverage, and that approach seems to have been a cue for Nui Kids Water. This all-natural product is juice-sweetened, and real fruit juice is the only source of sweetness; however, the company is quick to note that this is far from the product's only benefit. "There is nothing like this on the market today," says Brian Machovina, president of Nui LLC. "Parents repeatedly told us that strong and healthy bones, digestion and immune system were most important to them when it came to their children's health and well-being. This is not just another flavored water; rather, it is super-sized nutrition in a powerful little bottle."

Nui Kids Water has 25% of the RDA of calcium per 10oz bottle, as well as antioxidants from a caffeine-free green tea extract and other fruit extracts. Antioxidants were also easy to find in more adult-oriented beverages at the expo. Bossa Nova Beverage Group displayed a 32oz version of its acai juice with agave (in original, mango and blueberry flavors), and the label proudly declared, "nature's highest antioxidant fruit." Oxygen radical absorbing capacity (ORAC) analysis by Brunswick Laboratories found acai contains 167 ORAC units, well ahead of the 106 ORAC units in pomegranate and the 61 in Wild Blueberry. The company notes the product is sweetened with organic agave, "the healthiest, lowest glycemic index sweetener available," a representative explained. Bossa Nova also added two new flavors this year: raspberry and blueberry.

The biggest trend in the beverage aisles in recent years has been the rapid growth of energy drinks. The energy drink market experienced over 800% growth from 2000 to 2005 and is expected to hit $2.4 billion in 2006. Natural Products Expo West had an ample number of natural options for the consumer, with many straying far from the caffeine and sugar overload so prevalent in many mainstream energy beverages. Sambazon's Rio Energy featured yerba mate and guarana, while SYZMO Energy brought the organic movement to energy drinks. Certified organic by Quality Assurance International Inc., SYZMO is available in three flavors—Passion,

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Prickly Pear and Blue Agave. Specifically, the premium blue agave nectar is certified organic, and it also has the lowest glycemic index of all the sweeteners on the market, company representatives contended. With 90 calories per serving, SYZMO has natural caffeine from coffee, guarana extract, green tea extract, yerba mate extract, biotin, folic acid, zinc and co-enzyme Q10, as well as vitamins B2, B3, B6 and B12. The company says two years went into its efforts to develop a healthy energy drink.

Milking Energy

Another energy drink alternative shuns virtually all of the prior notions of the segment. Stonyfield Farm took the opportunity to introduce Shift Organic Energy Drink, which combines protein, vitamins, acai and ginseng, though no caffeine or guarana. The company notes that Shift drinkers do not experience a rapid heart rate, anxiety, gastrointestinal problems or other side effects frequently associated with traditional energy drinks. Further differentiating it from energizing competitors, Shift is a cultured dairy drink made with milk and other ingredients from "organic farms that pledge not to use antibiotics, hormones or toxic and persistent pesticides and fertilizers." Discussing the reasoning behind the product, Gary Hirshberg, president and CE-Yo at Stonyfield Farm, explains, "Energy drinks promise a lot but only give a temporary, artificial energy spike followed by a quick low. For teens and young adults who want to maintain a healthy and sustainable energy level, Shift is the only organic alternative [with a] benefit from vitamins, protein and calcium—things the body needs for peak performance and recovery." Each 10oz serving has 200 calories; low-fat Shift has a third less sugar than regular yogurt smoothies and boasts acai, calcium and vitamins B3, B6, C and D.

With such a surge in the popularity of beverages that boost energy levels, it seems unusual that some introductions would attempt just the opposite. While these relaxation drinks were not a rage (only a couple were at the show), they could be the start of a counter trend.

Malava Beverages LLC introduced Malava Relax. The "world's first natural juice drink enhanced with kava and essential

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vitamins," the product is an effort to claim a market position between the "heady jolt of energy drinks and the nutritional promise of fruit-based beverages." The certified organic kava is an herbal root used by South Pacific cultures for relaxation purposes, hence the company's description of the product as an "anti-energy drink" that provides a sense of calm and clarity without a loss of focus. A Malava Relax Lite version also is available that incorporates sucralose as a sweetening agent.

Dreamerz, unlike the Malava products, is a line of beverages that purport to induce sleep safely and naturally. The three-item line is formulated with melatonin and a proprietary milk-derived protein. The company says studies have shown Dreamerz helps people fall asleep faster, wake fewer times per night and improve their overall quality of sleep.

A natural active ingredient proven to assist with relaxation and stress reduction, the component is derived from milk casein and contains a bioactive peptide with relaxing properties but does not contain lactose. Each 8oz serving of Dreamerz contains 150mg of the relaxing protein and 0.3mg of melatonin. Known as "the sleep hormone" because it helps regulate sleep and wake cycles, the latter is a hormone naturally produced by the pineal gland in the brain. According to the company, more than 20 studies at the Massachusetts Institute of Technology found that small doses of melatonin raise blood melatonin levels to normal nighttime levels and can help improve sleep quality through the night.

Products that similarly allow consumers a greater degree of control over their lives were among the trends to watch mentioned in educational sessions. In particular, Linda Povey's presentation "Top Trends for 2007" forecast an increased consumer interest in condition-specific products, as Baby Boomers embrace the idea of control and choice. Povey, vice president of strategic consulting at Natural Marketing Institute (NMI), explained, "Just in the last year, consumer choices have moved toward a sense of self-awareness." In 2004, 31% of consumers indicated supplements that are condition-specific were of interest to them; by 2005, that number had jumped to 44%, with immune support and energy concerns leading the way.

Coincidentally, Energy and Immunity were two of the three new varieties of wellness drinks launched by Aristo Health Inc. at this year's Natural Products Expo West, with Renew rounding out the new line. Energy is fortified with Siberian ginseng, Indian ashwaganda (to boost the immune system and memory), the antioxidant yerba mate, D-ribose for increased mental acuity to invigorate the body, and 50mg of omega-3s and -6s, in addition to vitamins B3, B5, B6 and

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B12. Immunity, meanwhile, seeks to strengthen the immune system with a proprietary blend of green tea extract, grape skin extract, grape seed extract, shiitake extract, plus 50mg of omega-3s and -6s. The same amounts of omega fatty acids are in Renew, which is high in natural antioxidants to help reduce oxidative tissue damage and is fortified with lutein esters, lycopene, apple polyphenols and aloe vera gel.

Similar wellness benefits could be expected from The Ginger People's Ginger Soother. This beverage features 19g of Chinese yellow ginger to "soothe the throat and stomach, warm the internal organs, and ease nausea and ailments—from colds to headaches." The company also notes that critical reviews in *Food Science and Nutrition* 17 (no.8 [1982]) found ginger is a powerful antioxidant with over 12 constituents superior to vitamin E.

No Gluten Glut

The passing of the low-carb craze appears to have left room in developers' efforts for gluten-free innovation, which is seeing notable emphasis due to a growing awareness of food intolerance, Celiac Disease and other diet-related issues, as well as what may be mistaken self-diagnoses. Regardless of the reason, the Natural Products Expo West had a wide sampling of gluten-free items.

As in beverages, many of these gluten-free offerings targeted young people. Amy's, for instance, added a Baked Ziti Kid's Meal, containing ziti pasta, broccoli and sauce, rice focaccia bread and apple crisp—all gluten- and casein-free.

Simplebites Mini Cookies from Pamela's Products are free of gluten and dairy. The chocolate chip cookies and Ginger Snapz are described as perfect for lunchboxes, treats on-the-go or a low-guilt indulgence. Similar cookie packs could be found from Enjoy Life Foods (in chocolate chip and snickerdoodle varieties), but the company's big announcement was two additions to its gluten-free and food allergy-friendly soft-baked cookie options—Happy Apple and Lively Lemon.

The 100-calorie phenomenon seen elsewhere also firmly ensconced itself in the natural sector, as Barbara's Bakery introduced Organic 100 Calorie Mini Cookies in oatmeal, chocolate and ginger varieties. Undoubtedly, this emerging trend will make its way further into the natural and organics category, as the segment further embraces mainstream trends. pf

Website Resources:

www.spins.com — SPINS research group for the natural products industry

http://us.infores.com — Information Resources Inc.

www.nmisolutions.com — Natural Marketing Institute

http://home.howstuffworks.com/energy-drink.htm — How energy drinks work



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The Slow Lane

Summer is quickly approaching and with it comes those hot days when a cool ice cream cone or novelty is the greatest thing in the world to most children. The only drawback has been the melting and resulting stickiness.

Popsicle ice pops may have found a solution to those two problems, though. Popsicle Slow Melts are made with a proprietary recipe and formulated to last longer than regular pops. As Julio Del Cioppo, Popsicle's director of marketing, notes, "Kids love to see their tongue turn red when they eat a cherry Popsicle, but moms…have told us they melt too fast. With the introduction of Popsicle Slow Melt, some of our pops will be longer-lasting and cause less mess."

The company is also debuting Popsicle Natural Colors and Flavors, promising to be the first novelty brand with natural colors and flavors. The natural move will be seen across the company's line, including Fudgsicle and Creamsicle varieties.



Fresh and Fruity

Anheuser-Busch has embraced fruits in recent months, both for flavoring advantages and for more nutritional pursuits. First, the company has extended its energy drink offerings to present 180 Red with Goji. The beverage has a slightly sweet cherry taste, balanced with a subtle tartness, but the true selling point likely will be the Goji berry juice. This small "superfood" is said to contain one of the highest antioxidant levels of any fruit.

Meanwhile, the company has augmented its Michelob Ultra products with fruit flavors. Michelob Ultra Fruit Infused Beers are pilsner-style beers with a hint of real fruit in flavors such as pomegranate raspberry (a berry aroma with a hint of pomegranate), lime cactus ("an exotic fruity bouquet with a clean citrus finish") and Tuscan orange grapefruit (a "complex citrus aroma with fresh juicy orange notes and a slight pink-grapefruit finish"). They are limited-time offerings, however; the 4.2% alcohol by volume (ABV) drinks will only be available until Labor Day.

In the Dough

Sandwich melts have long been a staple of sandwich chains around the country, but convenient, prepared versions of them have yet to make significant in-roads into the home kitchen. A recent package innovation may serve to change that.

Oscar Mayer Deli Creations use a microwave receptor tray to create hot, "restaurant-quality" sandwich melts in around 60 seconds. The Kraft Foods product includes bread and Oscar Mayer meats, as well as Kraft condiments Grey Poupon mustard and Kraft steak sauce.

The quality melt is possible thanks to QuiltWave, a packaging that heats the bread to a soft yet warm consistency, while melting the cheese and warming the meat. The technology's laminated quilts or pockets expand when exposed to microwave energy and provide close contact with the food product. Purportedly, it puts the hot surface immediately next to the food, driving away moisture and heating the bread.



Trans-formers

Foodservice's retreat from trans fat continues. Buca di Beppo, a 92-unit chain of Italian restaurants, has eliminated trans fatty acids from all of the oils it uses for cooking, including its fryer oil. Instead, the units have switched to a non-hydrogenated trans fat-free cooking oil made from a blend of cottonseed and canola oil.

Likewise, KFC and Taco Bell have dropped trans fats from many of their offerings. According to Taco Bell, all 5,600 of its U.S. restaurants have switched to cooking oil free of trans fat. KFC, meanwhile, says all 5,500 of its U.S. restaurants no longer fry chicken in oil with trans fat, having switched to a new soybean oil. The new cooking oil will be more expensive but has not changed the fried chicken's flavor, the company notes. PF

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■ Tate & Lyle officially opened its new sucralose facility, which has now begun the process of ramping-up to full capacity. This process is expected to take 12 to 18 months.

■ InterHealth Nutraceuticals Inc. named Gary Shap director of sales for the U.S. and Canada.

■ Mastertaste Inc. appointed Colin Garner to director of global business development for its Natural Products Division. The company also announced the re-launch of its enhanced website, www.mastertaste.com.

■ In the article "Snack Break" from the March issue of *Prepared Foods*, the report "2006 Eating Patterns in Canada" was published by The NPD Group.

■ Palatinit GmbH named Tonja Lipp technical sales manager for Palatinit of America, its North American subsidiary.

■ The National Starch and Chemical Foundation announced that Sarah Britton is the recipient of the first William H. Powell Scholarship.

■ Solbar Industries Ltd., Israel, expanded its marketing team in North America with the addition of Fred Kosanke and Paul Hargarten.

■ The National Organic Standards Board voted at its spring meeting in Washington, D.C. to exclude cloned animals, their offspring and any food products from cloned animals from the organic sector.

■ Cargill's Oliggo-Fiber inulin has been approved for use as a dietary fiber in Canada. This means Health Canada does not object to the classification of Oliggo-Fiber inulin from chicory as dietary fiber for labeling purposes in Canada.

■ Ocean Nutrition Canada Limited signed a joint venture collaboration agreement with Alicorp S.A.A., Peru's leading edible oils and food manufacturer. The result of this collaboration is that Ocean Nutrition Canada will open an omega-3 fish oil manufacturing facility in Peru.

■ Tate & Lyle acquired an 80% participation in the German specialty food ingredients group GC Hahn for $158 million.

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Weight for Health

Information Resources Inc. (IRI) has released its annual list of New Product Pacesetters. While new product activity has been busy over the past year, that has not translated into tremendous sales. In fact, sales success has changed little during the past decade, and less than 5% of new products reached $50 million in first-year sales.

The most successful new foods and beverages suggest the "eat healthy" message has firmly gotten through to consumers. Leading the pack was Kraft's South Beach line with $231 million over its first year. The South Beach products clearly indicate a consumer concern with weight management, but they also focus on nutrition, including whole grains and "good fats" in the brand's marketing strategies.

Weight concerns clearly weighed in favor of many of this year's top 10, notably Coke Zero (which tallied $121 million in its first year), Lean Cuisine Paninis frozen entrées from Stouffer's and two ice creams—Breyer's Double Churned and Dreyer's/Edy's Slow Churned ice cream. Promising half the fat and a third fewer calories than the company's regular line, the latter generated $229 million in year-one sales.

Another pair of products in the top 10 managed to focus more clearly on health. Sara Lee Soft & Smooth Bread featured whole grains and garnered $81 million its first year—good enough for the eighth spot—while a Dannon product turned attention to gut health. Dannon's Activia yogurt added probiotics, featured a marketing campaign which clearly and unequivocally touted regularity—and managed to rake in $128 million in year-one sales.

For an in-depth view of the full "Times & Trends" report, click on http://us.infores.com/page/news/times_and_trends.

Setting the Pace

2005-2006 New Product Pacesetters (Food & Beverage) in Millions

1. Kraft South Beach multi-category line	$231
2. Dreyer's/Edy's Slow Churned ice cream	$229
3. Breyer's Double Churned ice cream	$135
4. Dannon Activia yogurt with probiotics	$128
5. Coke Zero carbonated soft drink	$121
6. Gatorade Rain sports drink	$120
7. Black Cherry Vanilla Coke carbonated soft drink	$83
8. Sara Lee Soft & Smooth whole grain bread	$81
9. Stouffer's Lean Cuisine Paninis frozen entrées	$78
10. Stouffer's Corner Bistro frozen entrées	$77

Source: IRI InfoScan® Reviews Total year-one dollar sales across food, drug, mass channels, excluding Wal-Mart





Cheeseburger in Paradise

Hamburgers are one of the most popular foods in America; more than 40 billion are consumed every year, according to Johnny Rockets restaurants. With that many beef-filled bites annually, the restaurant chain opted to ask consumers about their hamburger preferences and habits.

The National Hamburger Month Consumer Survey (performed, appropriately enough in May—National Hamburger Month) found 70% of respondents preferred cheeseburgers to hamburgers. Some 74% of men want cheese on their burgers, compared to 67% of women. Other favored toppings included ketchup (63%), mustard (50%) and mayonnaise (42%), but innovative toppings are coming to the fore, including chili and onion rings (both at 6%) and barbecue sauce (7%). Less than 2% of respondents wanted their hamburgers plain.

If not consuming hamburgers, what do consumers prefer? Asked to name the food of choice for a summer barbecue, 35% said a burger, 26% wanted steaks, 24% craved chicken and 10% looked for a hot dog.

Acccording to the "18th Annual Weber GrillWatch Survey," American consumers most often grill hamburgers (the choice of 64%), followed by steak (46%), chicken pieces (40%) and hot dogs (34%). Even the fifth and sixth favorites managed double-digit percentages: ribs (14%) and bratwurst (13%). Asked to identify their all-time favorite foods to grill, the respondents' choices altered a little: steak was the preference of 34%, with poultry at 13%, hamburgers (12%), ribs (7%) and pork (5%). PF

From the Top

Americans' Favorite Hamburger Toppings

Cheese	70%
Ketchup	63%
Mustard	50%
Mayonnaise	42%
Barbecue sauce	7%
Chili	6%
Onion rings	6%

Source: Synovate/eNation on behalf of Johnny Rockets; n=1,000 adults 18 years or older (margin of error +/-3%)

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See Food Master-*INGREDIENTS*, p. 108



THE IN BOX: (continued)

■ Dairy Management Inc. and leading researchers from its six national dairy foods research centers and USDA will present "The Dairy Management Inc. National Dairy Foods Research Center Program: Responding to Industry Needs for New Technologies, Products and Markets" at the ADSA annual meeting on Monday, July 9, 2007, at the Henry B. Gonzales Convention Center in San Antonio, Texas. For more information, visit www.innovatewithdairy.com.

■ D.D. Williamson and colorMaker successfully petitioned the National Organic Standards Board (NOSB) for the placement of natural colorants onto the national list of ingredients approved for use in foods labeled "organic" or "made with organic ingredients." D.D. Williamson's Margaret Lawson, vice president of Science and Innovation with the company, received the prestigious Distinguished Achievement Award from the Southern California Institute of Food Technologists Section (SCIFTS). The company also announced the recent hiring of three new associates: Jennifer Guild as global food science and regulatory manager, Jody Renner-Nantz as food science chemist and Richard Wiebke as global quality manager. Metro United Way announced that local manufacturer D.D. Williamson & Co. Inc. reached the highest per capita giving of the largest, local United Ways, which raise $25 million or more per year in the Louisville area and would rank among the Top 20 companies in the entire U.S.

■ The Hershey Company and Barry Callebaut announced a strategic supply and innovation partnership, enabling the companies to work together to drive long-term growth in the global chocolate market. Under the agreement, Barry Callebaut will construct and operate a facility to provide chocolate for Hershey's new plant in Monterrey, Mexico. Barry Callebaut will also lease a portion of Hershey's Robinson, Ill., plant and operate chocolate-making equipment at the facility.

■ Todhunter Foods & Monarch Wine Company will now be known as Imperial Brands Gourmet & Specialty Division due to the recent acquisition by Imperial Brands, Inc.

■ An Organic Valley founding farmer and Organic Valley board president Wayne Peters received the cooperative's highest honor, the Ray Hass Organic Pioneer Award.



See Food Master-*INGREDIENTS*, p. 3

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See Food Master-*INGREDIENTS*, p. 28-29

Corn Oil Claim



Mark S. Hostetler, Blackwell Sanders Peper Martin LLP

In a response to petitioner ACH Food Companies, FDA has approved a health claim relating to corn oil and reduced risk of heart disease.*

The available claim against which FDA will use its enforcement discretion and will not take regulatory action is:

"Very limited and preliminary scientific evidence suggests that eating about 1 tablespoon (16g) of corn oil daily may reduce the risk of heart disease due to the unsaturated fat content in corn oil. FDA concludes that there is little scientific evidence supporting this claim. To achieve this possible benefit, corn oil is to replace a similar amount of saturated fat and not increase the total number of calories you eat in a day. One serving of this product contains _ grams of corn oil."

Disqualifying levels exist for cholesterol, sodium, total fat and saturated fat.

Companies which wish to take advantage of the claim should review FDA's "Qualified Health Claims: Letter of Enforcement Discretion—Corn Oil and Corn Oil-Containing Products and a Reduced Risk of Heart Disease." It may be viewed at: www.cfsan.fda.gov/~dms/qhc-sum.html#corn.

Regarding Irradiation

FDA has proposed changes in its "irradiation" regulations, Docket No. 2005N-0272; April 4, 2007.

Background of the Current Regulations. In 1986, FDA published its final rule (51 Federal Register 13376) on irradiation, requiring that the labels of irradiated food products bear the "radura" logo coupled with "a radiation disclosure" statement. "Treated with radiation" or "Treated by irradiation" should appear on the labeling of irradiated food products along with the radura logo. Additional truthful information such as "treated with radiation to extend shelflife" is permitted.

FDA's concern, which prompted the disclosure statement, is that irradiation does not always change the appearance of the food and that consumers may not realize by visual examination alone that food has been irradiated. Therefore, failure to clearly disclose the fact of irradiation would constitute misbranding—consumers would not have a material piece of information needed to make an informed choice.

In 1997, with the passage of the FDA Modernization Act, FDA began the process of reviewing possible changes to the irradiation labeling requirements. Additionally, the Farm Security and Rural Investment Act of 2002 (FSRIA) included new criteria for the definition of "pasteurization" and established a process by which interested parties could seek new labeling alternatives for irradiated foods. Criteria established by the FSRIA defined "pasteurization" as including the use of "radioactive isotope, electronic beam or x-ray to reduce pest infestation or pathogens..."

Regulatory Options Considered by FDA

1. No change in current irradiation labeling.
2. Remove the requirement of irradiated foods labeling.
3. Keep the current disclosure but require additional labeling of purpose, i.e., "Irradiated to extend shelflife" (optional under current regulations).
4. Keep current disclosure but allow alternate terms to be used, i.e., "pasteurized" (consistent with the FSRIA).
5. Require irradiation labeling only if the food undergoes a "material" change** as a result of irradiation; require description of the purpose of treatment, i.e., "…to extend shelflife," and permit use of alternate terms, i.e., "pasteurized."

The Proposal. The FDA is publishing the fifth option for public comment and adoption as a regulatory requirement. The label(s) of foods which are treated with irradiation and the irradiation treatment changes the food in a way which is not apparent to the consumer at the point of purchase must include: (1) the radura logo and (2) the term "irradiated" or "pasteurized;" and the purpose statement. If a company wishes to use a term other than "irradiation" or "pasteurized," it must petition the FDA for approval; if a company wishes to state "pasteurized," it must notify FDA with evidence of efficacy of the process.

It is important to note that the proposal is clear that irradiation alone is not a material change in the food which must always be disclosed. If irradiation does not change the organoleptic, nutritional or functional properties of the food in a way which is not obvious to the consumer, the fact of irradiation need not be disclosed.

Comments are due July 5, 2007. For information on commenting, visit: www.cfsan.fda.gov/~lrd/fdavoice.html.

* Corn oil, vegetable oil blends, vegetable oil spreads, salad dressings, shortening and other "corn-oil containing foods;" at least 4g per reference amount customarily consumed (RACC), not including main dish or meal-type products.

** FDA proposes to define "material change" as "if irradiation changes the properties of the food in a way that is not readily apparent to the consumer at the point of purchase. Therefore, in the absence of a material change, the fact that the food was irradiated is not considered a material fact and, therefore, no radura logo or label statement would be needed." (Organoleptic, nutritional or functional.) pf



Mark S. Hostetler is an attorney at Blackwell Sanders Peper Martin LLP. He can be reached at mhostetler@blackwellsanders.com.





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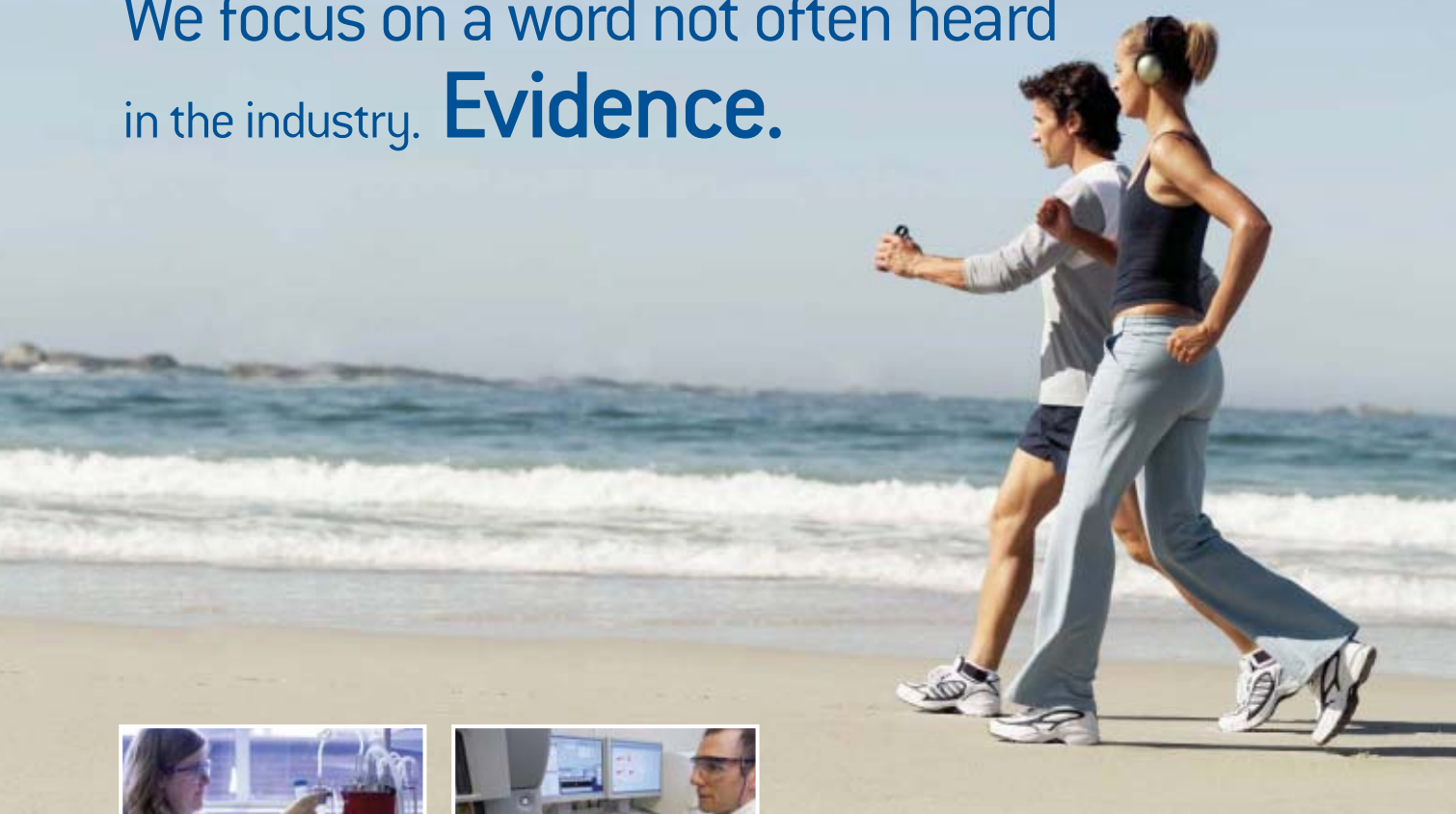
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See Food Master-*INGREDIENTS*, p. 21

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June 2007

SOLUTIONS FOR THE DEVELOPMENT AND MARKETING OF NUTRITIONAL PRODUCTS



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Ingredient CO-BRANDING Considerations

- R&D Applications: A Uniquely Metabolized OIL
- R&D Applications: Protecting MEMORY
- NUTRANEWS

INNOVATIVE FORTIFICATION > CUSTOM PREMIXES > BLENDING



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The Marketing Evolution of INGREDIENT Co-branding

The marketplace is increasingly populated with a wide range of branded ingredients formulated into supplements and foods. While it can be a smart marketing strategy, crucial factors such as partnership characteristics and distribution channels require careful consideration.

Jeff Hilton, Integrated Marketing Group



Glucosamine, largely found in supplements but seldom promoted on food or beverage labels, has made in-roads onto package fronts.

Today's marketplace is intensely competitive. As brands in any given channel become less differentiated, traditional marketing strategies such as developing value proposition and cultivating intellectual property (IP) become increasingly important. As Jack Trout testifies in his latest book, *Differentiate or Die*, successful brands find a way to set themselves apart from the competition in a way that is relevant and important to their target customer. As most marketers have learned through long experience, successful differentiation is all about determining a value proposition for the brand that has both rational and emotional elements, since customers buy with both the head and the heart.

If you have noticed an increase over the past decade in co-branding activity behind proprietary, patented, or in some cases, even commodity ingredients, it is no accident. A cutthroat marketplace is certainly a factor. Eroding consumer confidence has definitely created some urgency, and intellectual property violations have fueled the fire. The result is that manufacturers are increasingly looking for categories or segments they can own. That pressure is shared with their raw material suppliers and partners, who are trying to meet that demand with patented, proprietary or at least unique raw ingredients that have been branded to facilitate awareness and encourage differentiation. As a result, the market has been flooded with a wide range of branded ingredients incorporated into both supplements and foods, and the list is growing.

While it may be a popular strategy, is it also a smart one? The answer is a qualified "yes." In other words, it certainly can be a wise marketing approach, if it is executed well. However, it involves more than merely slapping a name and logo on the ingredient. The most successful programs are integrated to provide a 360-degree approach to marketing communication.

The assumption here is that by partnering in the promotion of a branded ingredient, a manufacturer and supplier



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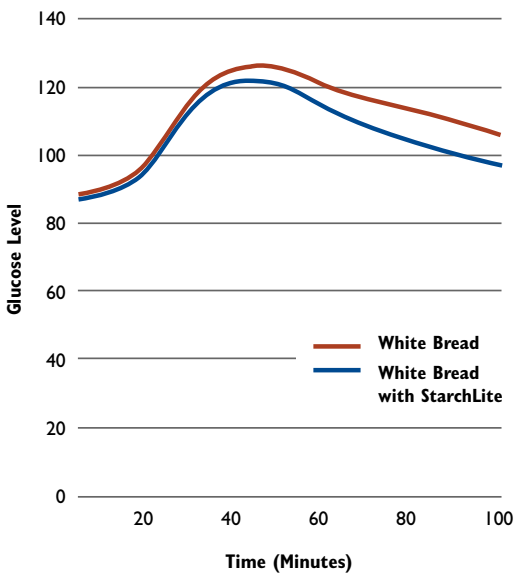
StarchLite is an all-natural ingredient which has been clinically shown in multiple studies to delay the digestion and absorption of carbohydrates and lower the Glycemic Index (GI) of starchy foods.*

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Omega-3s—chiefly either docosahexaenoic acid (DHA) or eicosapentaenoic acid (EPA), though others are emerging in various formulas—are finding their way onto the front labels of foods and beverages.

can share the cost of developing and introducing differentiated products into the marketplace and generate incremental sales. The supplier gains a committed customer that will continue to purchase raw material exclusively from them, as long as the branded ingredient or logo is in the product and on the label. The manufacturer gains a value-added product which can be sold at an above-parity price. Plus, the promotional dollars that each is willing to spend work together to build brand awareness and encourage trial.

Selecting the Right Co-branding Approach

There are numerous ways to attack this, but the key issues are the number of partners and the channels of distribution.

- A channel (or category) exclusive approach involves partnering with one major manufacturer for each distribution channel and offering them channel exclusivity in exchange for agreed-upon raw material purchases. These exclusivity agreements are usually for a minimum of one year and can extend up to three or five years, if mutually agreeable.
- A channel saturation approach involves offering the ingredient to a broad range of manufacturers in a given channel; the idea being to quickly ramp up distribution and awareness and make the ingredient widely available to consumers on a national basis. This helps facilitate and justify more widespread consumer awareness generation through advertising and public relations.

Generally, channel exclusivity is the right choice when the potential manufacturer is large and has a strong and broad market presence and can move enough units to make it financially worthwhile for the supplier. After all, if a supplier is tying up the product with one partner, that partner should be willing to commit to order minimums. This is particularly appropriate in niche channels such as Internet, multi-level or direct mail catalogs. It often makes sense to negotiate a one-year contract which is renewable upon mutual agreement for a second and third year. Market conditions change rapidly and so might the perspective on a particular co-branding partner.

Channel saturation may make sense if the ingredient is not patented or proprietary and can easily be knocked off. In that scenario, it becomes important to get into the market quickly and establish a foothold before the onslaught of competition arrives. That said, the most common model is something in between, where a supplier partners with a small number of moderately-sized manufacturers in a large channel such as retail, but allows exclusivity in smaller niche channels. While each program should be customized to the needs of both partners, there are several key elements which should be at least considered, if not included.

Brand Name and Identity

No element of your ingredient branding campaign will receive more scrutiny and attention than the company's ingredient name and graphic identity. Spend the time and the money to get it right. The name should be short and memorable and descriptive of the ingredient or its function. When considering potential graphic design approaches, these important points should be kept top of mind:

- Keep it simple. Do not overcomplicate the design.
- The logo identity must be legible at very small sizes, as it will often be featured on the back of a partner label.
- The logo identity must work in color and in black and white, since a partner label may not always offer the color options you would prefer.
- Minimize the number of words and descriptive terms you use. These will often not be legible at very small sizes.
- Try and evaluate potential designs through the eyes of the consumer.
- Less is more. The sole purpose of the logo is to readily and memorably register the name of the ingredient.

Trade Advertising Campaign

There are numerous ways to reach out and connect with potential manufacturing partners, but trade advertising can be a very effective tool to stimulate interest and inquiries. The key message strategy here should be to tell the manufacturer how your company's ingredient can



In recent years, beverages have begun to frequently tout various artificial sweeteners on the front of the package—a far cry from years ago, when they would be hidden among the ingredients legend.

assist in building a proprietary brand franchise that encourages customer loyalty. Manufacturers rely increasingly on higher-end, value-added suppliers to step up to the plate and partner with them in building awareness among retailers and in actively educating the consumer. Trade advertising should be focused on communicating how a partnership will help build a manufacturer's business.

Relationship Marketing Tools

Develop a plan to stay in contact with current and potential customers to remind them about the benefits of the branded ingredient. Tools to consider developing to assist in that effort include:

- Oversized postcard mailings highlighting various applications for the ingredient.
- E-mail or printed newsletter updating customers on scientific research developments, co-branding program opportunities or new branded ingredients.
- PowerPoint presentation for use with potential customers outlining co-branding initiatives and ideas for successful partnering.
- Business-to-business trade show seminars and educational sessions.

From pharmacists to retail store managers, consumers look to professionals for assistance or recommendations in purchasing healthy products. The products which are top of mind are the ones that professionals most often recommend. Smart suppliers will offer to assist manufacturers in creating loyal and informed retail partners that proactively suggest and recommend their products. That assistance might take the form of co-branded informational brochures, a retailer version of the above-mentioned trade newsletter, an education module program where retailers can certify as specialists in a particular ingredient category or an offer to provide a spokesperson or medical professional for a retailer education seminar at a trade show.

Consumer Awareness and Education Tools

The most significant task at hand is building consumer awareness of the branded ingredient. Consumer advertising is expensive, but it is always critical to the success of a branded ingredient. Again, manufacturers will often expect a supplier to assist in this process, since the resulting sales will generate increased purchases of branded raw materials and, in effect, lock a manufacturer into an extended relationship with the supplier. Consumer tools to consider include:

- Print or broadcast advertising that features the ingredient by name and tells consumers which brands include it and where they can find those brands.
- Product literature which promotes both the ingredient and the manufacturer's specific product.
- In-store signage such as posters and shelf-talkers.
- Consumer seminars or product demos.
- Public relations activity.

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- www.PreparedFoods.com — Type in the word "co branding" for a lengthy list of articles
- www.qsrweb.com/article.php?id=6851&prc=54 — Article titled "The Conundrum of Cobranding"



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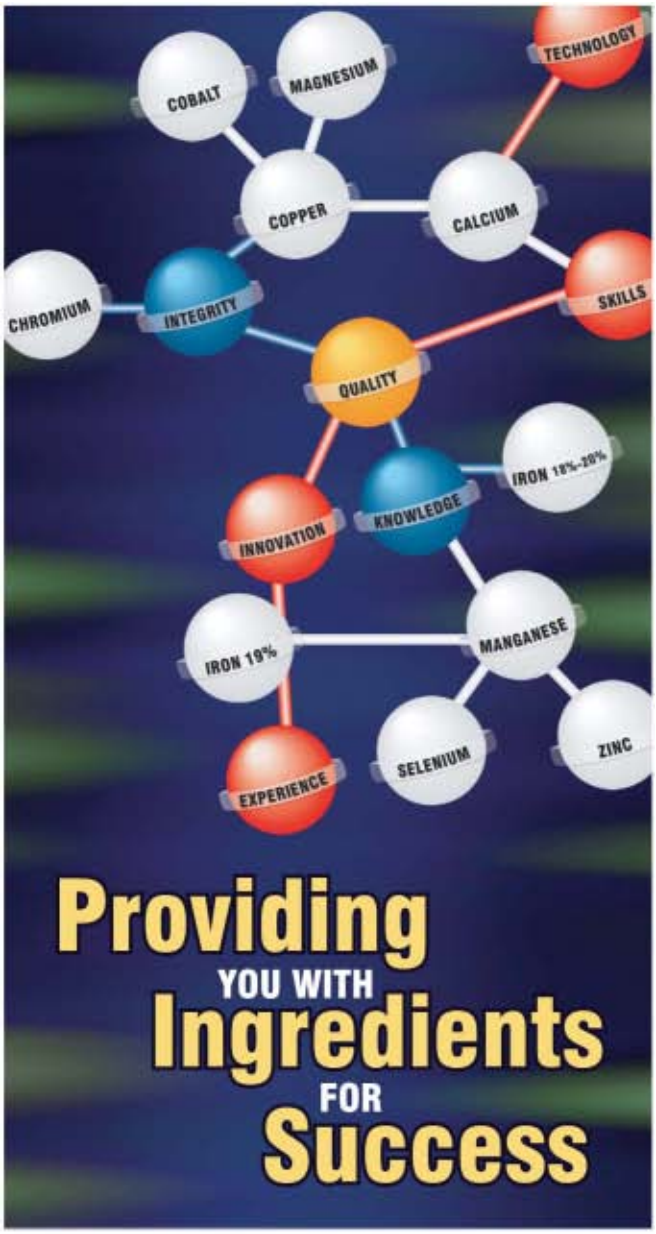
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The Power of Public Relations

It is hard to over-estimate the value of PR as a tool to help drive consumer demand for a new branded ingredient. In the early stages, trade PR can help suppliers link up with manufacturing partners by creating a positive "buzz" about the ingredient—particularly if it has valid scientific support. In the later stages, once adequate finished product distribution is achieved, consumer PR can help "birth" a product by stimulating consumer demand. We have all witnessed firsthand the positive groundswell as well as the destructive effects of press coverage. Specific tools to consider include:

- Development and mailing of a press kit to targeted trade and consumer media lists.
- Ongoing media relations and pitching of story ideas tied to approaching editorial topics.
- Matte story placements.
- Development and distribution of a video news release covering a relevant product angle.
- Event sponsorships.
- Booking radio interviews for a product spokesperson.

This author often is asked about the cost of a successful branding effort. That is roughly equivalent to asking the cost of a new car. Depending upon the make and model, the budget can fluctuate widely. That said, the most important lesson learned in working with clients over the years is that if the effort cannot be adequately funded, it may not be worth attempting to brand an ingredient, particularly in the present environment and economy.

There is no question that ingredient branding can be a successful strategy for growth, even in this challenging marketplace. It takes R&D innovation, scientific support and marketing commitment. It also requires partnership between companies with compatible resources. When the right elements come together, the results can be very powerful. The future of co-branding activity is bright and full of rich opportunities for those who dare to dream and then make their dreams a reality. NS



Jeff Hilton is president and a founding partner of Integrated Marketing Group, a marketing and brand consultancy created to optimize all aspects of marketing communications, including corporate identity, advertising, public relations, Internet marketing, research, packaging, merchandising, sales promotion, educational programs, trade show presence and direct marketing. The firm serves the healthy lifestyles, food and personal care industries; www.imgbranding.com.

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FOOD INNOVATION

See Food Master-*INGREDIENTS*, p. 143-146

foodinnovation.com

A Uniquely METABOLIZED OIL

Kerry Hughes, R&D Applications Editor

Another seemingly too-good-to-be-true type of "good fat" has come to the functional food table. Not only does this oil have amazing nutritional properties, it also has strong functional benefits in food formulation. Medium chain triglycerides (MCTs) are a type of fat that is used by the body more like a carbohydrate. Most fats are either long chain (meaning they have 14 or more carbons) or short chain (meaning they have two or four carbons). MCTs differ because they are composed of six, eight, 10 or 12 carbons and—due to their structure—are absorbed rapidly and made available for energy. They are more akin to a carbohydrate, in contrast to fats that are absorbed more slowly and stored for later use.

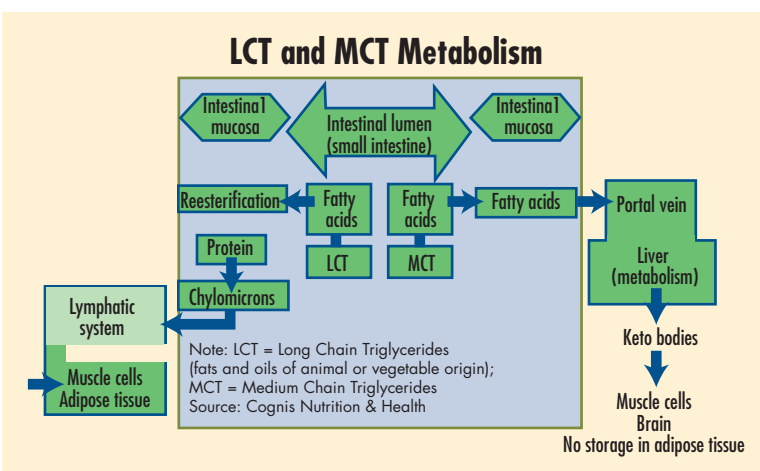
MCTs are also being discovered to have excellent functional use in food formulation, as Cognis has proven with its line of Delios® MCT oils. According to Charles Barber, technical service manager, Cognis Nutrition & Health, "Since MCT oils not only consist of a smaller molecular weight, but also are completely saturated, they have a high resistance towards oxidation." Also, due to their low viscosity, MCT oils have a clear, water-like quality and are ideal dilatants and solvents for flavors, colors, vitamins or other oil-soluble ingredients. As MCTs tend to have higher polarity than other oils, they also exhibit higher solubility. Food applications are many and include solvents or carriers, anti-stick, agglomeration aids, anti-dusting for powder mixes, spray oils for stir-frying, sliding oil for sausage casings and as substitutes for white mineral oil-based lubricant substitutes.

There are many health benefits of MCTs, mostly having to do with their unique metabolism to produce energy for athletic performance. They are also a fat substitute during weight loss. During the metabolism of MCTs, they are transported to the liver for breakdown, and ketone bodies are formed which the body may use as energy. Long chain triglycerides (LCTs) are absorbed more slowly, however. They are also not transported to the liver and are broken down more slowly for later use. MCTs are thus used by some people to reduce fat, reduce serum triglycerides and increase energy. (See chart "LCT and MCT Metabolism.")

Clinical studies have been conducted with favorable results in several areas, including weight loss, energy and athletic performance. One study (St-Onge, et al. 2003. *Obes Res.* 11:395-402) compared a diet rich in MCTs with one that was high in LCTs and investigated the impact on energy expenditure and adiposity in overweight men. The parameters studied were body composition, energy expenditure, substrate oxidation, subjective appetite and ad libitum energy intake. The diet rich in MCTs resulted in greater loss of body fat, possibly due to increased measures of energy expenditure and fat oxidation. In earlier studies, MCTs were found to produce an increased thermogenic effect and weight loss supplementation (Matsuo, et al., 2001. *Asia Pac J Clin Nutr.* 10:46-50; Matsuo et al., 200. *Metabolism*. 50:125-30.).

MCTs are not recommended to completely replace all fat in the diet, but rather to supplement the diet. They would be excellent in functional foods, meal replacers and bars, as well as in regular food products that tend to be high in fats. Moreover, MCTs provide the full texture and mouthfeel expected without the fat being stored in the body after consumption. Cognis recommends that up to 50% of the standard fat or oil level can be replaced with MCT oils, depending on the type of product or formulation. Delios MCTs are available as liquids and spray-dried powders and with different C8:C10 ratios. NS

For more information:
Cognis Nutrition & Health • La Grange, Ill.
Charles Barber • 708-579-6162
charles.barber@cognis.com • www.cognis.com



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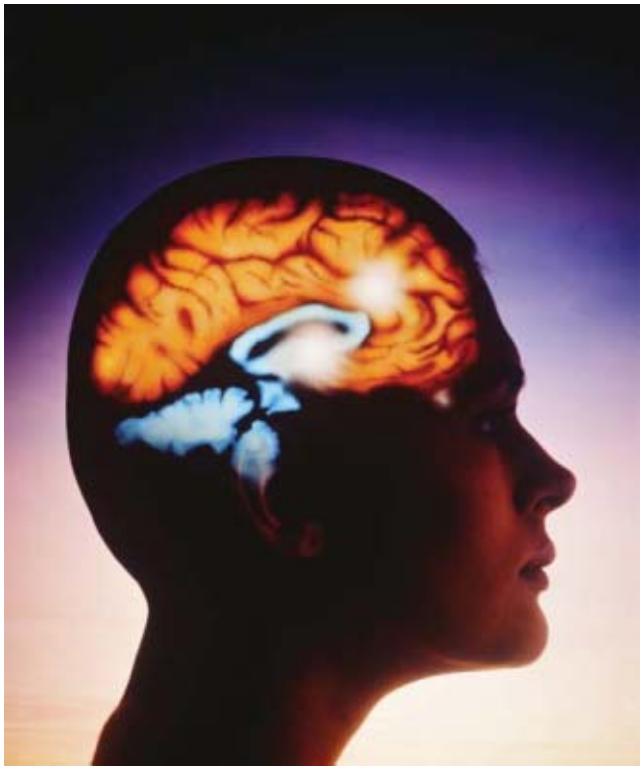
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PREPARED FOODS

Previous Page | Contents | Zoom in | Zoom out | Front Cover | Search Issue | Next Page

qMags

PSST! Remember Me



Phospholipids have an important biological function; they form the membrane of all biological cells. The most striking member in the phospholipid family is phosphatidylserine (PS), which is a functional constituent of brain membranes. PS is mostly found in brain cells and is involved in numerous functions of neuronal activity. PS also acts as a cofactor to numerous enzymes in the body. It is believed to play a role in cellular communication, reduce tissue responses to inflammation, function as an antioxidant and also increase exercise capacity [1,2]. In recent years, phosphatidic acid (PA) is also thought to play an active role in membrane and neuronal processes.

Phosphatidylserine can play a vital role in supporting human cognitive functions as we age. The current treatment approaches are almost entirely based on alleviation of symptoms to improve the quality of life. In 2003, The Food and Drug Administration (FDA) authorized two qualified health claims for PS: the first stating that it may reduce the risk of "cognitive dysfunction" in the elderly and the second claiming to reduce the risk of "dementia" in the elderly.

Phospholipid content in almost all food products is relatively low. There is no Reference Daily Intake (RDI) for PS in the U.S., and the health claim does not identify specific intake quantities. However, studies have shown that PS supplementation has nutritive value from 50mg to 300mg per day.

Prior to 1992, the only commercially available PS was derived from cow's brain (bovine cortex phosphatidylserine, BCPS). That year, Lipogen Ltd. (Israel) was the first to introduce soy lecithin PS. The enzymatic reaction process for the production of Lipogen PS utilizes cabbage enzyme instead of the optional bacterial enzyme. Last July, the FDA approved the GRAS notification of Lipogen PS patented product line.

"This is the first time that the FDA has approved a PS product as safe for food fortification," says David Rutenberg, CEO at Lipogen. "Other PS ingredients available on the market are produced with bacterial enzymes, while Lipogen PS production complies with non-bacterial enzymatic process. This 'green-light' from FDA is a significant move for Lipogen, as it aims our non-bacterial PS ingredient into the functional foods and beverages marketplace." It is vegetarian and kosher-certified and can be applied to various key category applications such as milk, yogurt products, breakfast cereals, biscuits, meal replacements, etc.

Lipogen continues clinical research of a new PS complex, which includes another member of the phospholipids family: phosphatidic acid (PA). A 2004 clinical study published in *Stress: the International Journal on the Biology of Stress*[3], tested the effect of PS and PA under mental stress. The results provided initial evidence for a selective dampening effect of PS and PA in the physiological response to mental stress. **NS**

References:

[1] Kingsley M. 2006. Effects of phosphatidylserine supplementation on exercising humans. Sports Med.36:657-69

[2] McDaniel MA, et al., 2003. "Brain-specific" nutrients: a memory cure? Nutrition. 19:957-75

[3] Hellhammer J, et al., 2004. Effects of soy lecithin phosphatidic acid and phosphatidylserine complex (PAS) on the endocrine and psychological responses to mental stress. Stress. 7:119-26

For more information:
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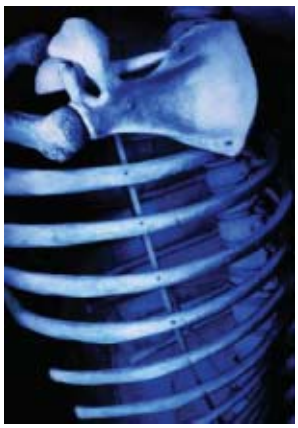
— Myron Cooper,
Vice President,
Technical Services
The Hain-Celestial Group

"The event exceeded my expectations. We found it very beneficial to meet with existing suppliers along with those we did not know. We were shown resources and product lines that we were unaware of prior to the meetings. Great use of my time."

— Michael Maney,
Vice President Quality Assurance / Research & Development
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Bone Up on Bone Health

A new study finds that most Americans are unaware of key facts concerning healthy bones and also lack important knowledge about health issues related to bone disease. These findings were conducted for GTC Nutrition, makers of NutraFlora® short-chain fructooligosaccharides (scFOS®) prebiotic dietary fiber, and found startling information ranging from osteoporosis in women to young girls' calcium intake. The survey findings underscore the opportunity Americans have to increase their overall health and well-being by learning about bone health and the factors that influence it, including calcium absorption. GTC Nutrition's goal is to make consumers more aware of the risks and provide them with easy choices. GTC Nutrition, Trina O'Brien, 303-468-5077, tobrien@gtcnutrition.com, www.gtcnutrition.com

Purely Beneficial

Now food and beverage product lines can differentiate themselves from the crowd and maintain a competitive edge with a new product containing omega-3s. Pizzey's Milling's MeadowPure™ is leading the field by being the first to provide a truly unique ingredient to health-conscious consumers that combines the omega-3 benefits found in both flaxseed and fish oil, allowing for healthier foods without compromise to taste or shelflife. MeadowPure™03 Ultra delivers the benefits of both oils in their premium flaxseeds, allowing manufacturers to incorporate all three essential fatty acids (ALA, DHA and EPA) into their product offerings. Pizzey's Milling USA, Linda Pizzey, 877-804-6444, info@pizzeys.com

Fresh Site

A growing innovative business in the booming nutraceutical industry is looking at fresh ways to reach their customers and improve their services. Charles Bowman and Company has launched a new website in a continual effort to back their innovative new products with the latest in scientific research and studies. In addition to a new look, the website offers a news section that will be updated with new products, studies and important industry news. There will also be links to product brochures, studies and basic new product information, all in an appealing and user-friendly site. Charles Bowman and Company, Sara Viges/Greg Edmunds, 616-786-4000, www.charlesbowman.com

Stimulating Results

Two practical studies confirm that wild green oat extract influences brain activity and stimulates cognitive function and motivation. The studies, introduced by Frutarom Inc.,



add to previous scientific evidence showing that Neuravena® stimulates the dopaminergic transmitter system. Testing of the product on behavioral rats showed improved general learning performance and enhanced social competence and intelligence at low dosage. Neuravena is prepared from a scientifically selected variety of wild green oat and has a dual activity profile on two cerebral enzymes closely connected to mental health and cognitive function. Frutarom USA Inc., Laurent Leduc, 800-526-7147, lleduc@us.frutarom.com, info@us.frutarom.com



A Little Off the Waist?

With so many consumers wanting to lose weight, it is important to find healthy ways to decrease body fat. Clarinol™ CLA, from Lipid Nutrition, may have the answer. A recently published study (Gaullier, JM. 2007. *British Journal of Nutrition*. 97:550-560) reported on clinical trials with Clarinol CLA and found that it reduces fat mass in particular locations on the body. The researchers noted, "All changes were independent of diet and physical exercise." Subjects in the trial lost the equivalent of about 4lbs of fat around the waist and in the leg areas. The control group in the research not only lost weight, but showed significant loss in the areas mentioned. Lipid Nutrition, Patrick Luchsinger, 815-730-5208, patrick.luchsinger@lipidnutrition.com, www.lipidnutrition.com

Beneficial Fruits

Today's consumers are not only concerned with their health; they are also presented with increasing numbers of "healthy" supplement, food and beverage choices. It becomes difficult for product manufacturers to differentiate new and existing products on the market. Enter BeneFruits™, an all-new line of proprietary functional fruits and vegetables launched by Verdure Sciences. Benefruits' ingredients are developed specifically for manufacturers of value-added products. The line is led by clinically researched "gold standard" of pomegranate—patent-pending POMELLA® extract standardized to the potent punicalagins—along with a complete line of the highest quality kosher-certified pomegranate ingredients derived from the company's own farms. Developed for seamless integration into various applications—including supplements, food and beverage, and skin/personal care—



research on BeneFruits is ongoing and scheduled through 2010 to evaluate effects on internal, oral and skin care parameters. Verdure Sciences, Blake Ebersole, bebersole@vs-corp.com, www.benefruits.vs-corp.com

Ascending to K2

A recent study published in an April issue of *Blood Journal* reveals greater benefits of vitamin K2 over K1 in promoting bone and cardiovascular health. The study demonstrated that vitamin K2 as menaquinone-7 (MK-7) was superior to vitamin K1 in several important areas, including better absorption, much longer bioavailability and higher efficacy levels in the body. This first human study using natural vitamin K2 as a dietary supplement shows that eating foods rich in the vitamin significantly promotes bone health, reduces risk of bone injury and significantly promotes cardiovascular health. Until recently, vitamin K1 has been the main variety of the vitamin K family used in commercial supplements and is the most common variety in food groups. Increasing interest in MK-7, however, may increase its appearance in supplements on the market. **NS**

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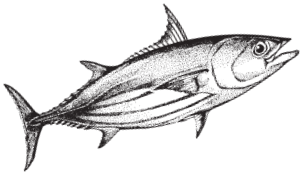
True Blue News

Researchers from Rutgers University and the U.S. Department of Agriculture suggest that a compound in blueberries may be good for preventing colon cancer. The key ingredient found in blueberries, pterostilbene, is a natural antioxidant and mops up highly reactive molecules called free radicals that can trigger cancer growth. Other studies show that blueberries lower cholesterol, slow down the aging process and improve eyesight, coordination and balance. Because fresh blueberries are not always available, Leading Brands has developed True-Blue® blueberry juice, an all-natural product that is lightly sweetened with cane sugar. It has 25% fewer calories per serving than most cranberry-based products and has as much juice as a full serving of fresh blueberries. Offered in six delicious flavor varieties including Blueberry-Blackberry and Blueberry-Iced Green Tea, health-conscious consumers can choose whatever suits their taste buds. Leading Brands Inc., Jill Klosowski, 866-685-5200, jklos@LBIX.com, www.trueblueberry.com

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Latin Cuisine: No Longer Ethnic?

Latin cuisine is no longer considered ethnic by most American consumers. Restaurants in every geographic area of the U.S. now carry Latin-inspired items as part of their regular "American" menus, and new items are being added by chefs and embraced by diners.



PHOTO COURTESY OF CARNIVALE RESTAURANT

A trio of innovative *ceviches* comprises Carnivales' signature appetizer.

J. Hugh McEvoy (Chef J), Contributing Editor

Recently, the *Chicago Tribune* ran a lead story applauding the "most powerful" chef in America. The article was about chef Dan Coudreaut. Chef Coudreaut is the corporate executive chef for McDonald's restaurants, world-wide. The story was prompted by the amazing national success of the most recent introduction on McDonald's menu—the Chicken Snackwrap. Marketed as a mainstream product and positioned to appeal to an across-the-board consumer mix, the new wrap is clearly American food. How did the world's most powerful chef create a new menu item that would appeal to the entire spectrum of consumers? He took a piece of crispy chicken, and then he wrapped it in a tortilla. "Our guests are voting," Coudreaut tells us. "We're serving two million more people now than two years ago. Those are the people I listen to. Salsas are definitely on trend with where food is going. It's going to be very relevant." The chef adds, "I consider cilantro an edible garnish— a sprig of rosemary; maybe not so much." Clearly, Coudreaut feels that Latin flavors and ingredients have a place on the world's largest restaurant chain's menu. Has Latin cuisine made the jump from ethnic food to American mainstream?

Mainstream Media

Steve Dolinski is the food and lifestyle reporter with a Chicago news station. Steve stays abreast of developing trends in food, cooking and dining. His timely and insightful reporting has won him numerous awards, including James Beard Awards for food journalism. When interviewed about McDonald's new wrap, Dolinski said, "Latin cuisine has become American cuisine. McDonald's new 'snack wrap' is a chicken strip wrapped in a tortilla. That's a Latin menu item. It was not promoted as Latin, but a tortilla wrapped around spicy chicken—that's Latin—Americanized Latin." He continued, "Our chefs now travel extensively. They visit various South American countries, Mexico and even Spain. They bring [their] newfound knowledge back to us and have been putting it on America's menus. That has led to a demand for a wide variety of once exotic, yet now readily available, Hispanic ingredients. Latin ingredients are available in most supermarkets. The answer is yes; Latin cuisine has become mainstream."

American quick service restaurants (QSRs) are not the only example showing the mainstreaming of Latin cuisine. Walk into the lobby of any Costco or Sam's Club warehouse store, and you will likely smell a delicious aroma of fried dough, cinnamon and sugar. Before a customer even gets

PHOTO COURTESY OF NACIONAL 27®



Randy Zweiban is executive chef and partner at Nacional 27, one of Lettuce Entertain You Enterprises' restaurants. Its menu is promoted as providing a "bold combination of flavors from 27 countries."

into the store, a food vendor will surely be offering a hot, tasty snack. In the lobbies of these most American of mega-markets, one can find Latin food. The snacks one smells are churros. A churro is a fried dough, pastry-based snack that originated in Spain and is popular in Latin America, France, Portugal, the U.S. and Spanish-speaking Caribbean islands.

The churro is sometimes referred to as a Spanish or Mexican doughnut. It is similar in shape to the horns of the Churro breed of sheep, which are reared in the Spanish grasslands. The churro is typically fried to a crunchy consistency. Its surface is ridged, due to being extruded from a churrera, a syringe with a star-shaped nozzle. Churros are generally prism-shaped, but instead of being straight, they may be curled or spirally twisted. None of the millions of shoppers streaming past the churro vendors each week at Costco are surprised by the Latin food being sold. Why should they be? At this point, churros are simply one more American snack food.

From Haute Cuisine to Dairy Queen

That most American of menu items, the hot dog, was once considered an ethnic food! The hot dog was first introduced to consumers by German immigrants. A delicious steamed sausage originating in Frankfurt, Germany, it was not until someone Americanized it (by slapping it into a bun) that it ascended to its position as a mainstream culinary icon. Pizza is another ethnic food that began as a humble immigrant recipe and is now known world-wide as a typical food of the U.S. Mayonnaise was a classic French sauce, prepared by master chefs for gourmet diners in fine restaurants. Today, "mayo" is as American as (Dutch) apple pie.

Most culinary trends begin on the tables of fine restaurants. The best make their way from there to casual dining, through fast-casual chains and on to QSR menus. By then, we can find the item on America's supermarket shelves and in our refrigerators.

How did a tortilla come to be our latest American snack food? Jerry Kleiner helped put it there. Jerry Kleiner has a number of very successful gourmet restaurants in Chicago. Marché, Gioco, Opera and Red Light are just a few. He has a habit of spotting a trend before it happens. Jerry is an expert at finding a neglected neighborhood, inserting a new concept at just the right moment and single-handedly making the area a hot spot. A few years ago, he took a forgotten bar in a dead-

Tasty Latino Offerings

ConAgra consistently creates successful new products for almost every segment of the food industry. Chef Matthew D. Burton, CEC, CHE, CRC, director of culinary innovation at ConAgra Foods, is one of America's top experts on developing food trends. Chef Burton says it is important to define Latin cuisine carefully, before classifying it as mainstream. Things like nachos, chips and salsa, fajitas, quesadillas, tacos, burritos and black beans are "today as American as hot dogs and hamburgers." However, he cautions, not all Latin cuisine is yet on America's tongues or palates. It is important to remember that Latin America encompasses a huge area, and only some of the cuisine is part of America's food vocabulary. "I would think there is some great room to grow in America to introduce a lot of new flavors and combinations to the public."

Items from Puerto Rico, such as *recaito* (a cilantro-based seasoning with green pepper, onion and garlic), for example, have yet to make it into the American lexicon. The same can be said for *sofrito*, a Caribbean cooking base made with tomato, onion, green pepper and garlic. He says that many items are certainly making a name for themselves on menus like mole and mojo, or jerk and even *chimichurri*. However, he believes it will be a while before the day-to-day menu items from lower Latin American countries become mainstream in the States.

Condiments from Peru such as *ajili-mojili* (garlic and pepper sauce) or the Yucatan's *xni-pec* (a fiery hot salsa) may be next to ketchup and mustard on tables one day. Given the number and variety of choices, there is surely no end in sight for introducing American diners to more things Latin!





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PHOTO COURTESY OF NACIONAL 27®

This delightful octopus salad is one example of how seafood plays a key role in Nacional 27 restaurant's *nuevo Latino* menu.

end area and infused it with the colors, flavors and aromas of Latin culture. Carnivale is a Pan-Latin restaurant and night club. Brazilian, Mexican, Colombian and a bit of a dozen other Latin cuisines makes something new. Kleiner's multi-million-dollar Latin creation has successfully created a new trend. The theme is lively and colorful *nuevo Latino* fare.

During a telephone interview Kleiner shared his thoughts: "Carnivale has been a tremendous success. It was intended to get in front of a coming wave. The Latin trend was that wave. We caught the energy level and the excitement of all things Latin. This cuisine was almost, but not yet, mainstream; the trend is still on the upswing. But, the trend will soon be part of the fiber of American society. Latin is coming. I feel that Latin style and culture has now become somewhat mainstream. The menu in Carnivale was intended and designed to have across-the-board appeal. The concept was intended for the mainstream consumer. The flavors, the music, the feel; it is all a celebration of life; the spice of life! This [concept] appeals to mainstream restaurant customers. We are considering expanding this restaurant to other cities and other regions. Las Vegas, Miami, New York or cities on the West Coast are all being considered. This concept could work in any major American city. Carnivale would now be a success anywhere."

Of course, Kleiner is not the only one who can spot a trend as the wave is building. The Latin wave is a tsunami; a wave that big is easy to spot. In Miami, the mainstream cuisine is Cuban-American. However, one the hottest new concepts is the $10million Karu & Y Restaurant, where the menu is Pan-Latin Cuisine. In the epicenter of Cuban–Caribbean cuisine, Latin is considered a new concept. Back in Chicago, a second big player on the restaurant scene is Lettuce Entertain You Enterprises (LEYE). Since the mid 1970s, LEYE has had a never-ending string of hit new restaurant concepts. Always a few years ahead of trend, Lettuce launched Nacional 27 Restaurant. The menu reflects the 27 Latin cuisines of South America. In Minneapolis, Conga Latin Bistro is one of the hottest dinner reservations in the twin cities. The menu is Pan-Latin and includes traditional *croquetas* and *empanadas*, Mexican appetizers and a spicy garlic soup. Entrees range from fried pork to the *azauel de mariscos*—a seafood platter of shrimp, clams, mussels and crab. Latin cuisine has clearly established itself as mainstream, even in the Northern Midwest.

Salsa vs. Catsup

Salsa, chili, tacos, tortillas and even chipotle; all of these terms are part of every American's vocabulary. We use them in normal conversation; they describe parts of our daily diet. Latin cuisine has clearly become part of daily American life; it is no longer ethnic. We may soon hear someone say "as American as nacho cheese" and not be surprised by the statement.

McDonald's knew that a tortilla would be universally accepted as a wrapper for its newest mainstream menu item, and the company knew it did not have to be marketed as a Latin item. That understanding helped chef Coudreaut to launch a tremendously successful new product. Clearly, the world's most successful multi-unit restaurant chain understands the line between ethnic and average American. Recognizing which side of that line Latin cuisine now falls will give savvy product developers "the chef's edge." pf

Website Resources:

www.nacional27.net — Website of Nacional 27, a Chicago restaurant specializing in Latin American food

www.ivu.org/recipes/latinam — Site offers 32 vegan Latin American/Caribbean recipes

www.therealperu.co.uk/guide/fooddrink.aspx — A good overview of Peruvian dishes, desserts and specialties, broken down by region



PHOTO COURTESY OF NACIONAL 27®

Nacional 27's Latin sea bass entrée is healthy as well as delicious.



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On the National Menu

Maria Caranfa, Mintel



© WAYNE TANG / ISTOCKPHOTO.COM

Just a Bite

Mini desserts are influencing the menu in a big way. According to Mintel Menu Insights, mini desserts are not limited to fine dining restaurants anymore, as small servings of crème brulée and mini cakes are popping up at casual and fast-casual restaurants. Restaurants are experimenting with bite-sized treats to draw consumers back to dessert offerings.

Claim Jumper and Panera Bread Company are just two restaurants that have made room on their dessert menus for the tiny treats. Claim Jumper offers a Small Bites dessert menu that includes Green Tea & Ginger Crème Brulée, English Toffee Pudding, Cinnamon Caramel Flan and a Red Velvet Cupcake. Panera Bread Company created Mini Bundt Cakes in Carrot Walnut, Pineapple Upside-Down and Lemon Poppyseed.

Mini treats are nothing new to coffeehouses, as many of them offer cookies, brownies and muffins. However, many coffeehouses—including Starbucks and The Coffee Bean & Tea Leaf—are expanding their bakery lines to include specialty treats such as cupcakes. Starbucks offers cupcakes in vanilla and Chocolate Chocolate flavors, and The Coffee Bean & Tea Leaf has three cupcakes—Chocolate Cream Cheese, Pumpkin Cream Cheese and Banana Cream.

Elbows (Macaroni) Off the Table

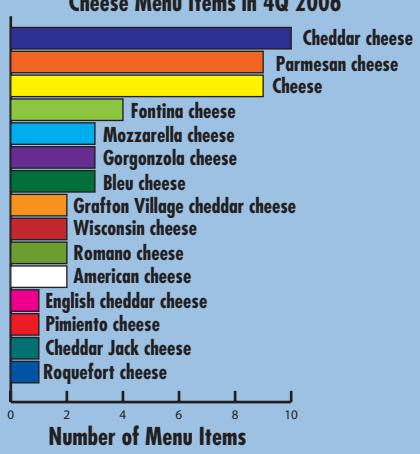


Tender pasta surrounded by a velvety cheese sauce—macaroni and cheese may be the ultimate comfort food. Restaurant menus are featuring more and more cheesy goodness. However, contemporary macaroni and cheese is not limited to cheddar cheese sauce and elbow pasta. Mintel reports that macaroni and cheese has gone gourmet by incorporating Romano, bleu, mozzarella, fontina and Gorgonzola cheeses. Many gourmet varieties use cavatappi, rotini, fusilli and bowtie pastas to carry intricate cheese sauces. Wolfgang Puck Gourmet Express offers Four Cheese Macaroni with a creamy blend of mozzarella, fontina, cheddar and Gorgonzola cheeses. Sturkey's takes macaroni and cheese to the maximum level with its Lobster Macaroni and Cheese—a blend of lobster, diced bread, mascarpone and English cheddar.

While many restaurants are creating seriously gourmet fare out of macaroni and cheese, others are taking the comforting favorite to new forms. CiCi's pizza took two favorites—pizza and macaroni and cheese—and created the ultimate Macaroni and Cheese Pizza. The Cheesecake Factory and T.G.I. Friday's offer macaroni and cheese on their appetizer menus in the form of Fried Mac' & Cheese. These bite-sized bundles of macaroni and cheese are perfect for dipping or great on their own.

Say Cheese

Top 10 Cheeses in Macaroni and Cheese Menu Items in 4Q 2006



Source: Mintel Menu Insights



Beet It

Restaurant menus of all dining types are bursting with the deep crimson and golden yellow colors…of beets. According to Mintel, popular beet varieties on the menu include unspecified beets, baby beets, ruby red beets, golden beets and candy cane beets. Plus, the rich flavor of beets is being enhanced through roasted, pickled, braised and candied preparations.

Salads are the most popular vehicle for beets. California Pizza Kitchen offers a salad of romaine, watercress and fresh beets with Gorgonzola cheese and walnuts in basil Gorgonzola vinaigrette. The Rattlesnake Club serves a Roasted Ruby and Golden Beet Pyramid with baby frisee and red oak salad tossed with horseradish, aged sherry vinaigrette and chive oil.

While salads may be the most popular beet application, the versatility of beets is limitless. Border Grill serves a pickled beet salsa with its Quesadilla Abierta, an open-faced quesadilla with goat cheese and watercress. Janos Restaurant created a beet and pistachio flan as part of its Tasting of Fall Vegetables. Le Bec-Fin created a showcase of red beet salmon gravlax, golden beet salad and golden beet tempura. In the drink sector, Juice It Up blends beets into its Rejuvenator, which is a dynamic mix of carrots, cucumbers and beets.



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Shake, Shake, Shake…

The milkshake is a blank slate. Its simplicity allows for some restaurants to design milkshakes invoking a sense of nostalgia, while others are borrowing from dessert trends. No matter how it is designed, a milkshake is one menu item that will never go out of style.

Milkshakes are all about flavor. Mintel lists the top 10 milkshake flavors as chocolate, vanilla, strawberry, Oreo, banana, raspberry, pineapple, mint chocolate, mocha and coffee. Emerging flavors include root beer, peanut butter, peach, cinnamon and blackberry. Cheeburger restaurant blends a creamy cinnamon milkshake, and Tower Inn has created a nutty hazelnut shake.

Milkshakes are also being transformed into sippable desserts. Steak n' Shake created Sippable Sundaes—hand-dipped milkshakes topped with a choice of toppings including hot fudge, whipped cream and a cherry. Other desserts influencing the milkshake include Dreamsicle, banana split, Black Forest cake, cheesecake and chocolate cream pie. Burgerville blends ice cream, espresso, chocolate, cherries and whipped cream to create a Black Forrest Milkshake. Quick-service restaurant chain Sonic looks to cream pies for its inspiration, creating the Strawberry Cream Pie and Chocolate Cream Pie milkshakes. pf

Shake It Up

Top 10 Milkshake Flavors in Q4 2006

Flavor	Number of Menu Items
Chocolate	112
Vanilla	105
Strawberry	105
Oreo cookie	26
Banana	19
Raspberry	12
Pineapple	11
Chocolate and mint	10
Mocha	10
Coffee	10
Caramel	10
Root beer	9

Source: Mintel Menu Insights


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Course 101 on Wheat Starches



PHOTO COURTESY OF CORN PRODUCTS INTERNATIONAL

Waxy and high amylose starches differ in characteristics and functionality. Advice is offered on starch choice, how to avoid formulation issues and obtain optimal results.

Elizabeth Mannie, Technical Contributing Editor

In order to appreciate waxy (i.e., high amylopectin) or high amylose starches and flours, a trip down memory lane to an introductory cereal chemistry course might be helpful. Wheat starch (as well as other starch sources like corn) is composed of glucose polymers of two main types: amylose and amylopectin. Amylopectin, the larger of the two molecules, is a highly branched structure, while amylose is mostly a linear chain molecule of glucose units connected by α-1⇒4 linkages. Amylopectin also consists of glucose chains linked with α-1⇒4 bonds, but the chains branch out to form a large molecule with α-1⇒6 linkages at the branch points. (See diagrams: "Partial Amylose Molecular Structure" and "Partial Amylopectin Molecular Structure.")

The molecular weights and degree of branching of these starch molecules vary by plant source. Reports for amylopectin molecular weight range from 5.0x107 to 5.0x108. Amylose molecular weight can range from 1.6x103 to 1x106.

When starch granules are put into solution with heating, they swell irreversibly in a process called gelatinization. In gelatinization, intermolecular bonds are broken down, which allows hydrogen-bonding sites (between hydroxyl hydrogen and oxygen on a molecule) to "engage" more water. In solution, after gelatinization, the linear amylose chain has a tendency to re-associate or realign, forming gelled structures upon cooling. This re-alignment of the amylose chains is referred to as retrogradation.

Waxy and high amylose starches differ fundamentally in the ratio of starch polymers of which they are comprised. This greatly impacts their applications.

Starch Characteristics

Regular wheat starch has an approximate composition of 70% to 75% amylopectin and 25% to 30% amylose, which is similar to corn starch composition. Starch characteristics can be influenced by chemical or physical modification. Many commercial starches have been modified in some way to change swelling characteristics, gelatinization temperatures and/or retrogradation tendencies.

Through plant breeding, traditional starch can be altered to adjust the amount of amylopectin and amylose in the starch granules. Waxy and high amylose starches are results of plant breeding. Typically, when a starch is termed waxy, regular or high amylose, this refers to the relative ratio of amylose and amylopectin within the plant starch granules. Waxy starch is higher in amylopectin; near 97% with 2.5% amylose. Some waxy starches reach up to 99.99% amylopectin.

"High amylose starches reverse the tendencies [toward higher amylopectin content]," states Joe Lombardi, business manager for a well-known supplier of starch ingredients. These ingredients are typically 50% amylose or higher. Some hybrids now reach 60%, 70% and even 80% amylose, he adds.

Waxy Starch

According to USDA evaluations of wheat starch, in order for waxy wheat to have great commercial potential, the starch should be full waxy and consistently exhibit greater thickening power than the non-waxy counterpart. Waxy wheat starch has distinct characteristics that may increase its commercial use and provide a means to obtain variations in specific food products.

With little to no amylose present, waxy wheat starch thickens upon gelatinization but does not gel or retrograde upon cooling due to its branched amylopectin chains. The phenomenon known as syneresis, where water seeps out of a gel, is also due to amylose chains which are re-establishing bonds. Therefore, waxy starch tends not to cause syneresis.

Waxy starch forms a paste at lower temperatures and holds more water than regular wheat starches. Waxy starch gels do not tend to lose water when exposed to freezing and thawing (syneresis). Waxy wheat starch is more stable in solution over time and under stress conditions such as cold temperature storage and temperature cycling. "While waxy wheat starch granules gelatinize at lower temperatures (typically 45˚C), the gels are not as strong as regular starch gels," states Robin Guy, Ph.D., manager of cereal processing and bakery science at U.K.-based Campden & Chorleywood Food Research Association.

"High amylose starches can be extremely hard to cook, but once gelatinized and cooled, they form very firm and rigid gels and films," advises Lombardi. "High amylose starches also form strong complexes through the amylose fraction with emulsifiers and several flavor components. These complexes can reduce the formation of resistant starch from the amylose. Normally higher levels of flavor should be used to overcome the losses in the starch," advises Guy. "The high amylose starch functions better at high temperatures and is more stable in an acid environment, whereas the waxy wheat starch breaks down easily under mild cooking and shearing conditions," he adds.

Functionality

"The primary function of a waxy wheat flour is similar to standard flour: to deliver rich, indulgent textures and appearance and authentic, culinary quality taste. The key difference is that it offers the same positive attributes of traditional flour while eliminating one of the key negatives—textural instability. Textural instability limits traditional flours used in a wide variety of value added and rapidly growing segments, such as refrigerated soups," contributes Lombardi.

As mentioned, the inherent properties of native starch materials can be leveraged for advantage in processing and/or texture. If, for example, a product needs to be very stable to textural changes over time, it would be best to stay away from amylose-containing materials. However, if a rigid gel structure is needed, such as in confections or inflexible films for coatings, a higher amylose-containing product might be utilized.

"Cold temperatures and temperature cycling tend to hasten the re-association or retrogradation of the amylose chain, contributing to textural instability when using regular starches. In low-moisture systems like breads and cakes, retrogradation can contribute to and exacerbate the staling process. Waxy wheat, due to inherent stability, will contribute to maintaining good texture. As with all starches and flour thickeners, time, temperature, pH and mechanical shear in the process need to be considered when choosing the appropriate ingredients," adds Lombardi.

"Enzymes can sometimes be an issue. Enzymes found in fruits and spices can cause a breakdown of the flour or starch, resulting in a thin, watery texture. To avoid this issue, food manufacturers need to ensure that the ingredients they use are properly processed to deactivate the enzymes. Additionally, to get the best functionality from flour, it needs to be suitably cooked. Undercooking can contribute to off-flavor (raw flour flavor) and a less stable product," states Leslie Drew, food scientist at a popular starch supplier.

All starches can be degraded by amylases after they are gelatinized if the moisture levels are above about 14% w/w. This would reduce viscosity or consistency in the food, which is why amylase should be removed by heat treatment (heating to > 90˚C).



See Food Master-*INGREDIENTS*, p. 15

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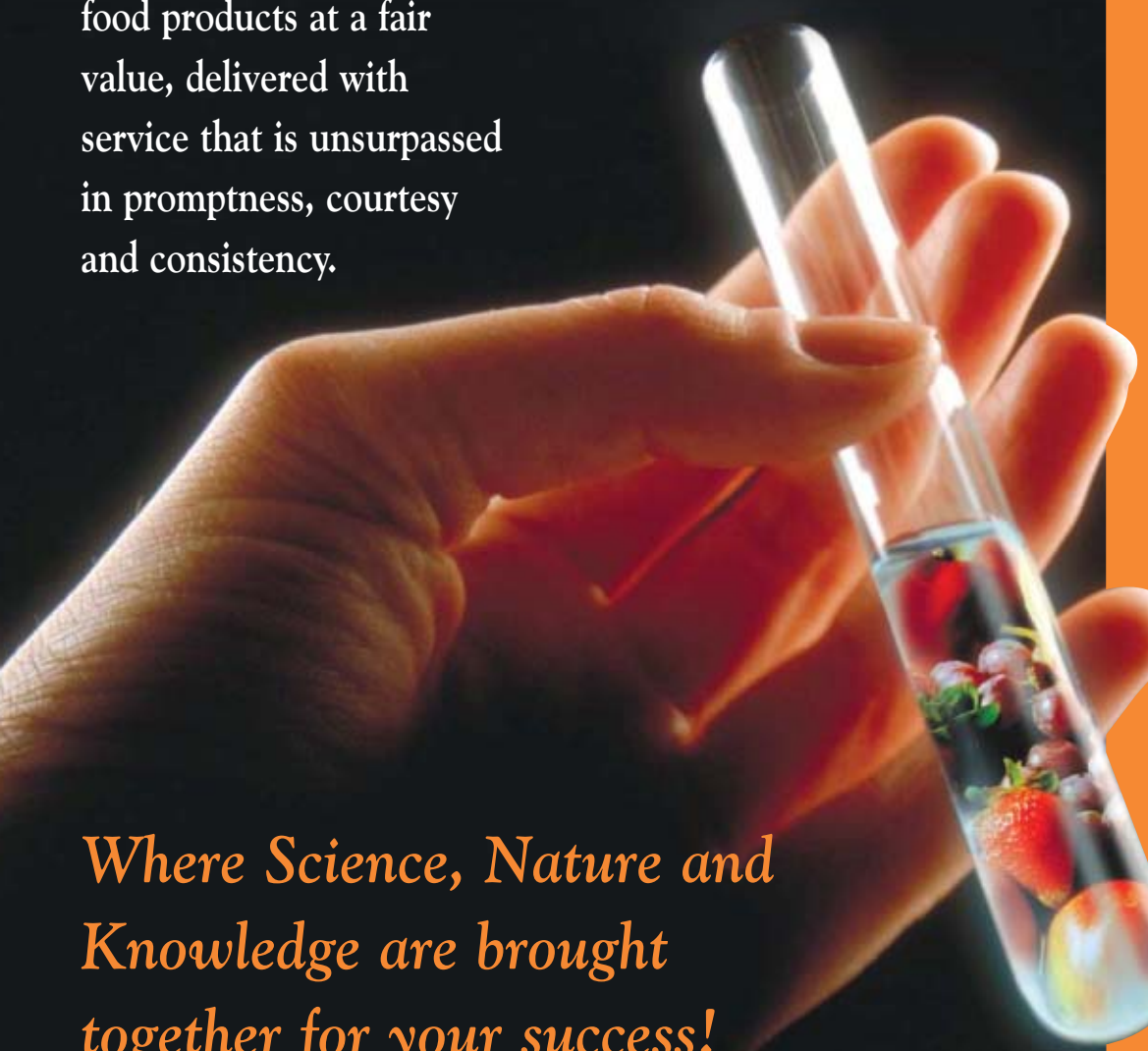
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High amylose starches tend to function better at high temperatures and in an acid environment such as salad dressings.

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Applications

Waxy wheat flours can be used to thicken soups, sauces and gravies, but they also offer excellent textural stability upon cooling, freezing and reconstitution, which is a great tool for high-quality refrigerated soups, frozen meals and shelf-stable sauces. Both native waxy and high amylose starches and flours are in development stages for baked goods, so their uses are still under investigation.

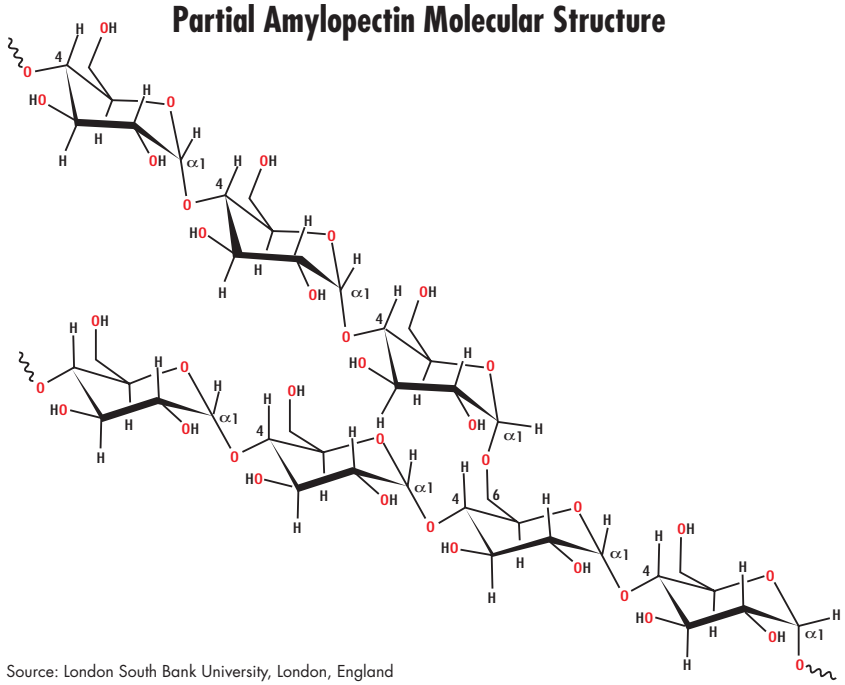
"Waxy starch would be useful in extruded snacks, because the granules are easily dispersed, and it is the dispersed starch polymers that are functional in most extruded products. In bread and cakes, waxy starch fails to stabilize the structure but can be used in small amounts to give a softer crumb. However, waxy maize is used as a thickener in sauces, soups and gravies after chemically cross-linking or high temperature heat treatment, and waxy wheat starch would also be suitable for these products after the same treatment," Guy advises.

"At present, high amylose starches are not used in bakery products to any extent; because they are still in the development stages, their functional performance is not known except for small lab-scale trials and they are mostly from genetically modified crops," says Guy. "However, high amylose starch has created interest for breadmaking, because it can carry the wheat proteins with it to make the dough while giving a change in digestibility and lowering the glycemic index," he says.

"The high amylose starch would probably be more unstable than normal starch and retrograde to form resistant starch in bread or cakes, which could be regarded as a positive effect that might be used to increase fiber in bread and improve its nutrition," contributes Guy. "But high amylose starches do not swell to create structure very well in bread or cakes. They can be used in extruded products where the conditions are more severe to gelatinize and disperse the granules and, in some batters, at the 10%-15% levels to give crispiness where gelatinization of the granules is not required," he offers.

The diagram of amylopectin shows the α-1⇒4 linkages between glucose molecules in the chains and the α-1⇒6 linkages at the branching points.

Partial Amylopectin Molecular Structure



Source: London South Bank University, London, England

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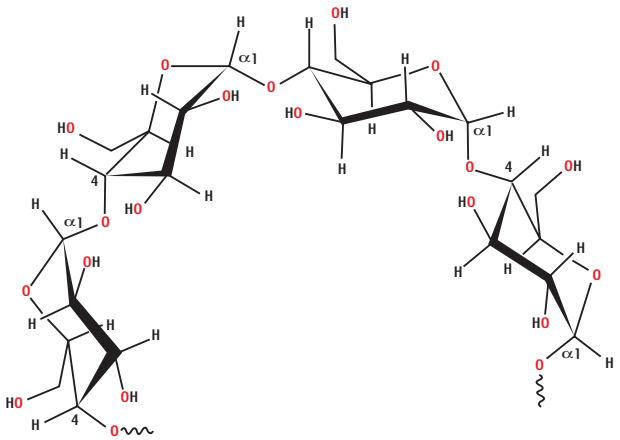
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Partial Amylose Molecular Structure



Source: London South Bank University, London, England

The diagram of amylose shows the α-1⇒4 linkages between glucose molecules in the chain. Amylose structure is long chains that form a helical structure.

Wheat starch may be preferred over other starch sources in certain baked goods due to the lack of chemicals used in production. "We are only now beginning to explore the various benefits waxy wheat flour or starch can bring to baked goods, particularly in extending textural quality in frozen and refrigerated doughs and [baked] goods. In addition, we are exploring the benefits in shelflife for standard fresh baked items," says Lombardi.

"The waxy and high amylose maize starches are priced much higher than normal maize starch, even though 'invented' in the 1960s, because of the production costs and functional benefits. The new wheat starches are likely to be much more expensive than normal wheat flour or separated wheat starch initially and possibly for the foreseeable future," Guy predicts. pf

Website Resources:

http://food.oregonstate.edu/learn/starch.html — Information on the chemistry of starch molecules

www.nationalstarch.com — Searchable commercial starch ingredients site with application-oriented information and technical support

www.starch.dk — Information on research, engineering, manufacture and application of starch (warning, loud tune with site)

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See Food Master-*INGREDIENTS*, p. 36-57

The Biotics

As the success of probiotic products grows in the North American market, competition increases. The use of prebiotic fibers is also expanding, but research points to how much we still need to learn in order to maximize their use.

Claudia Dziuk O'Donnell, Chief Editor



Besides a prebiotic dietary fiber, Lifeway Food Inc.'s Cultured Milk Smoothie Kefir notes it contains "10 Live & Active Kefir Cultures." Among others, they include *S. florentinus, Leuconostoc cremoris* and *B bacterium logum.*

"American consumers don't want to think about bacteria in their gut" has long been the stock advice in regards to marketing products containing healthful bacteria. However, both consumer attitudes and the marketplace are changing. "Probiotics may be the next omega-3s," says Alex Merolli, Nutri+Food Business Consultants. "The science supporting the relationship between gut health and impact on disease prevention/management is strengthening."

Some look to the success of probiotic-containing Activia yogurt as a sign of what the future may hold for food manufacturers. According to a January 2007 press release from The Dannon Company, Activia, promoted for its digestive health benefits, surpassed $100 million in U.S. retail grocery sales since the product's January 2006 introduction—a feat achieved by less than 0.1% of all new product launches. In March 2007, Kraft Foods introduced cottage cheese under the Breakstone's and Knudsen LiveActive brands. Their literature notes: "Contains prebiotic fiber that helps consumers meet their daily fiber goals and naturally regulate the digestive system." The company has also launched Kraft LiveActive Cheddar Cheese with Probiotics in Canada, touting it as "The only cheddar cheese in Canada that contains two beneficial probiotic cultures (*Bifidobacterium lactis* and *Lactobacillus rhamnosus*)." A September 2007 U.S. introduction for the product is planned. Dean Foods Co. has introduced probiotic cottage cheese under the Dean Foods, Country Fresh and Land O' Lakes brands with the claim "Improves Digestion."

While dairy-based products and dietary supplements have been traditional probiotic strongholds, these microbes more often are found in other applications as well. For example, Mintel's Global New Products Database (GNPD) shows that Flowers Foods recently launched Mrs. Freshley's Snack Away Peanut Butter Wafers with the claim "Contains Probiotics" on the package front and *Lactobacillus rhamnosus* in the ingredient legend. Attune Foods Inc.'s Cool Mint Chocolate bar sports a "Probiotics good for life!" logo. Its website attests to each attune bar as containing "more than 10 billion probiotics," and that the bars are formulated to "ensure each bar contains an effective number of probiotics when purchased." The probiotics are a commercial mix of *B. lactis*, *Lactobacillus acidophilus* and *Lactobacillus paracasei*.

Indeed, the particular species (or better yet, strain or even phenotype and genotype) of the probiotic culture used may well be as important to the specific health benefits a culture provides as is the type of fatty acid in a nutritional lipid. *L. bulgaricus*, *S. thermophilus* and its own trademarked *L. casei* cultures grace the label of Dannon's DanActive drink that is promoted for its immunity benefits. Stonyfield Farms, a pioneer in the probiotic U.S. market, incorporates "six live

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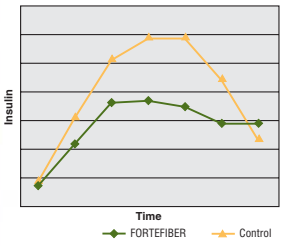
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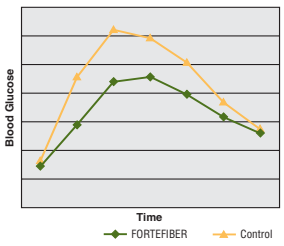
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Lactic Acid Bacteria: A Diverse Crowd

Characteristic	*L. plantarum* (n=24)	*L. mesenteroides* (n=10)	*L. mesenteroides* (n=13)	*P. acidilactici* (n=5)	*L. lactis* (n=3)
Growth at 45˚C	+	-	-	+	-
Growth at pH 3.9	-	-	-	+/-	-
Growth in 10% NaCl	-	-	-	+	-
Utilization of:					
Arabinose	+	-	+	+	-
Cellobiose	+	+	+	-	+
Fructose	+	+	+	+	+
Galactose	+	+	+	-	+
Lactose	+	-	+	-	-
Maltose	+	+	+	-	-
Mannitol	+	+	+	-	-
Sorbitol	+	-	-	-	+
Sucrose	+	+	+	-	-
Trehalose	+	-	+	-	-
Xylose	-	+	+	+	-

n = number of isolates
"+" = positive; "-" = negative; "+/-" = variable
Source: Select data condensed from Nokuthula, FK, et al. 2000. *Appl. Environ. Microbiol.* 66:1084-1092

Lactic acid bacteria (i.e., bacteria that produce lactic acid) form one of the most diverse groups of bacteria known. Researchers from one study analyzed the biochemical and physiological characteristics of 72 lactic acid bacterial strains isolated from sorghum powder and from fermented and cooked fermented sorghum porridge. While a stated objective of the study was to surmise from where the various cultures originated, this chart, a portion of the one shown in the original published paper, is a reminder that bacteria vary in their ability to use sources of fuel. Thus, dietary components and ingredients impact their vitality differently.

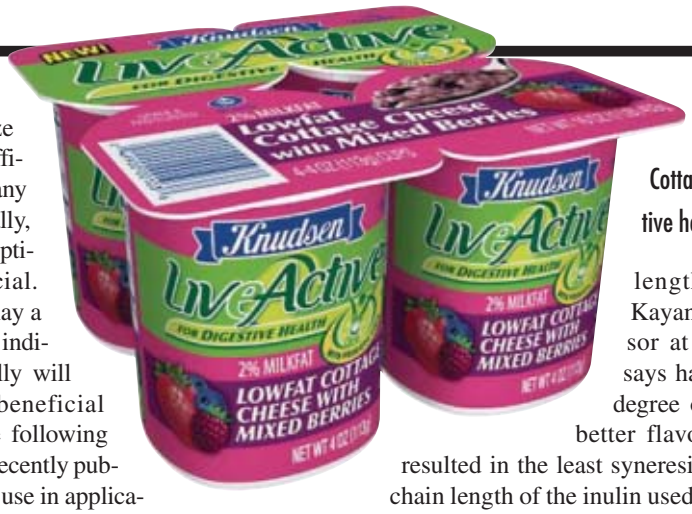
active cultures" on its yogurts. Three are the same strains found as in DanActive, but Stonyfield's products additionally contain *L. acidophilus*, *L. reuteri* and *bifidus*. The starter cultures *S. thermophilus* and *L. bulgaricus* are required by the National Yogurt Association in order for a product to meet the definition of yogurt. They help provide the product's typical texture and taste.

Cultivating the Best Bacteria

Which are the most optimal strains to use? Scientists are just starting to unravel the myriad factors that likely will result in the answer: "It depends." For just one example, NutraIngredients.com reported on a study to appear in the June 2007 issue of *Food Research International*. The researchers investigated the ability of four probiotic strains, alone and in combination, to inhibit, displace and/or compete with seven pathogenic strains. Lead author Carmen Collado reported that all probiotic combinations "inhibited pathogenic infection by over 40% for some pathogens tested." One conclusion was that a combination of different probiotic strains might reduce the ability of pathogenic bacteria to colonize the gut more effectively than one single strain.

The ability of probiotics to modulate the immune response is increasingly under investigation. For example, intestinal microflora also are said to play a crucial role in the inflammation associated with Crohn's disease through their interaction with the mucosal immune system (Lindsay, JO, et al. 2006. *Gut*. 55:348-55). The U.K. researchers note that some bifidobacteria species are immunoregulatory, and that fructo-oligosaccharides (FOS) increase fecal and mucosal bifidobacteria. Their study assessed the effect of consuming 15g of FOS for three weeks on disease activity, bifidobacteria concentrations and mucosal dendritic cell function in 10 patients with moderately active Crohn's disease. Results indicated that the FOS significantly increased fecal bifidobacteria levels and modified mucosal dendritic cell function, resulting in decreased Crohn's disease activity.

While discovering the specific health attributes of probiotic strains is an area of hot research, factors impacting the viability of these cultures are also of great interest. Indeed, the ability for probiotic bacteria to survive processing (whether in a food or supplement), storage, then transit



through the digestive system to reach and colonize the lower intestines in sufficient numbers, is key to many health benefits. Additionally, as with any organism, an optimal food source is crucial. This is where prebiotics play a role. These dietary fibers, indigestible by humans, ideally will preferentially support beneficial intestinal microflora. The following are just a few of the many recently published studies on prebiotic use in applications and in clinical research.

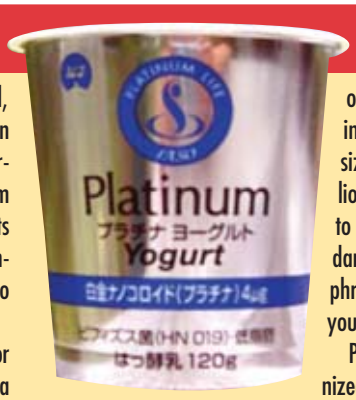
Kraft Foods reports it will introduce Knudsen LiveActive Cottage Cheese with Fruit (for digestive health) in the fall of 2007.

Survival Strategies

One study (Aryana, KJ, et al. 2007. *J Food Sci.* 72:M79-M84) investigated various effects that inulins of three different chain lengths had on yogurt when added at 1.5% w/w to the yogurt mix. The yogurts' characteristics were impacted in various ways. Yogurts with the shortest chain length inulin, which researcher Kayanush Aryana, assistant professor at Louisiana State University, says had an average polymerization degree of four, were judged to have better flavor. The longest chain inulin resulted in the least syneresis. However, regardless of the chain length of the inulin used, the yogurts all had comparable *L. acidophilus* levels, which were all higher than the control without inulin.

Another study (Saarela, M, et al. 2006. *Int J Food Microbiol.* 112:171-178) researched the ability of various fibers (10% and 20% β-glucan containing oat flours, apple fiber, wheat dextrin, polydextrose and inulin) to protect the viability of two *L. rhamnosus* strains during freeze-drying, storage in freeze-dried form and after formulation into apple

Yogurt Goes Nano-platinum



Sake, a beverage in which flecks of gold leaf have been incorporated, is a time-honored Japanese gift signifying wishes for good fortune. In September of 2006, Nippon Luna, the yogurt and fermented beverage subsidiary of Nippon Meat Packing Group, launched Platinum Yogurt, a product that builds upon that tradition. Due in part to its well-established supermarket and convenience store distribution channels, sales have been brisk and a sports-type, drinkable yogurt also has been introduced.

The product has a refreshing, not overly sweet taste and is intended for daily consumption. The package's silver metallic color targets those with a fondness for trendy products. However, the uniqueness of the product is in its four micrograms of platinum colloid per container, an ingredient developed by Yusei Miyamoto, a Tokyo University professor.

Globally, many natural water products are sold on the basis of "miracle" curative properties. Scientists have investigated waters possessing the ability to scavenge free radicals. Electrolyzed reduced water (ERW), which uses active hydrogen as the scavenger, is one type. (Shirahata S, et al. 1997. Electrolyzed-reduced water scavenges active oxygen species and protects DNA from oxidative damage. *Biochem Biophys Res Commun.* 234:269-74. An abstract can be found on www.PubMed.gov.)

As part of wider research in this area, many studies have analyzed the trace minerals in water. ERW was found to contain small amounts of platinum nanocolloids as atomic hydrogen (active hydrogen) donors, enabling them to function as reactive oxygen species scavengers.

In his work, Miyamoto analyzed about 50 transition metals, some used as reduction catalysts in organic chemistry. He produced nanocolloids of dozens of metals and observed them in the presence of reactive oxygen species. Miyamoto's platinum nanocolloids have a particle size of 3.3 nanometers (i.e., billionths of a meter) and are thought to be an unusually powerful antioxidant. Platinum Yogurt's promotional phrase is roughly: "We will prevent you from getting rusty."

Platinum nanocolloid is a recognized functional ingredient alongside more common items such as CoQ10. Although many experts caution about high intakes of these colloidal metals, the Japanese government permits their use as food additives. Nano-sized particle ingredients are being used in cosmetic products, especially in UV protectants and anti-aging skin creams. In addition, the health foods and supplements companies are beginning to include in them in tablets and new age beverages. —*K. Kubomura*



Kiyoko R. Kubomura, Ph.D., Kubomura Foods Advisory Consultants, is a lecturer at the World Health Organization (WHO) and adjunct professor at Tokai University of Medicine. She has consulted for companies such as Nestle, Pfizer and Dentsu and worked at Calpris Beverage Company and Aoyama Women's Junior College. kubomura@pp.iij4u.or.jp



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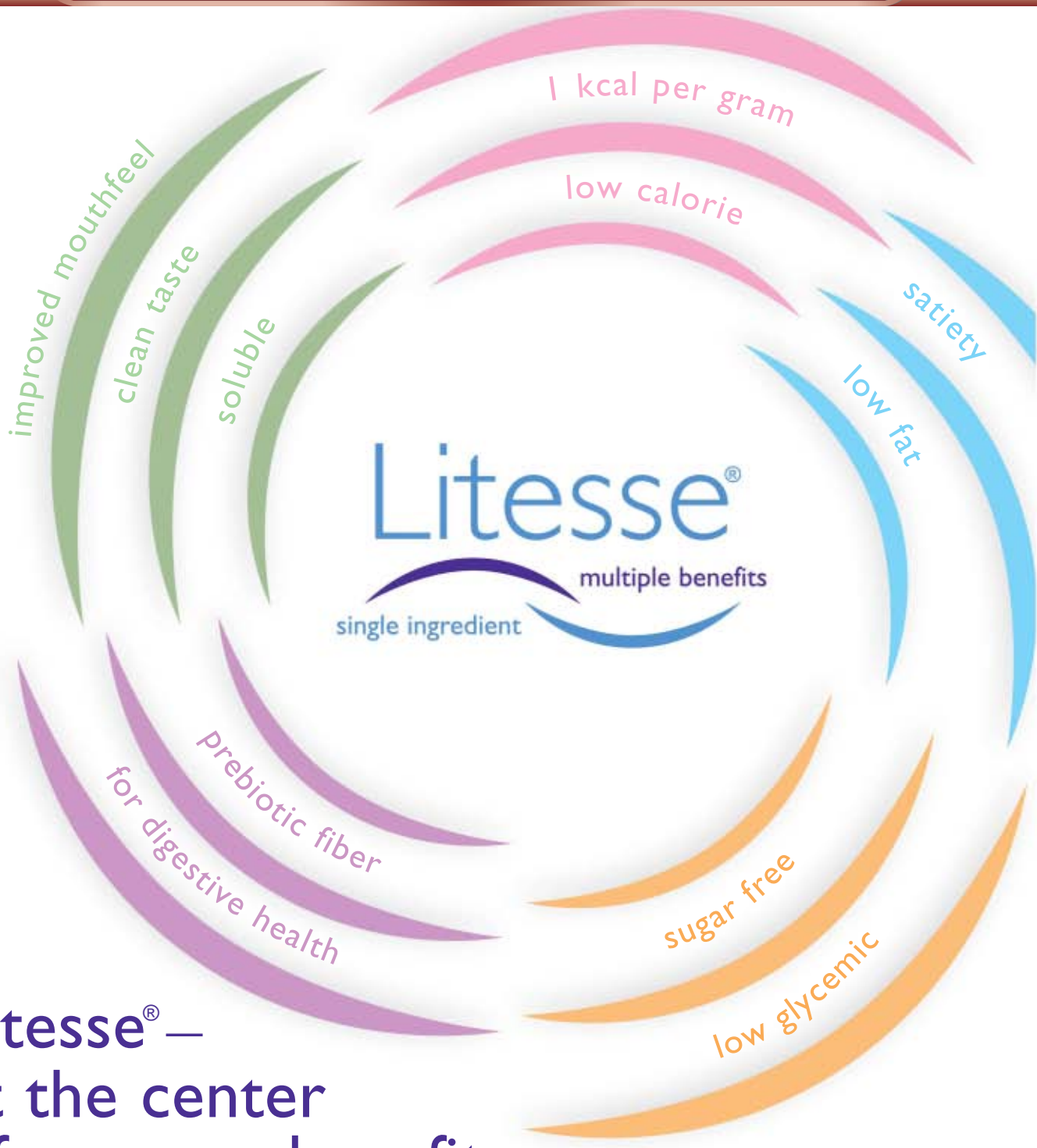
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See Food Master-*INGREDIENTS*, p. 149

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The ingredient legend of the attune bar notes that the product contains inulin as well as the probiotic cultures *L. acidophilus, L. casei* and *Bifidobacterium lactis.* It also claims to have "More than 5X the live active cultures in yogurt."

juice and chocolate-coated breakfast cereals. Here, wheat dextrin and polydextrose were the most promising carriers in regards to both freeze-drying survival and storage stability at 37˚C and when used in chocolate-coated breakfast cereals. The 20% β-glucan oat flour offered the greatest protection when the strains were incorporated into apple juice with a 3.5 pH. Freeze-dried cells were also more stable in chocolate-coated breakfast cereals when stored at 20˚C as opposed to the apple juice. This study shows that the optimal carrier for a probiotic may depend, in part, in how it is eventually used.

Studies in regards to prebiotic influence on intestinal microflora are many and occasionally contradictory. For example, it has been noted that oligosaccharides found in human milk are important in developing the intestinal microflora of babies. These prebiotics are not in infant formulas, and thus bottle-fed children have an intestinal microflora significantly different than breastfed babies.

Researchers at Wyeth Nutrition conducted a study with prebiotics that gave somewhat equivocal results (Euler, AR, et al. 2005. *J Pediatr Gastroenterol Nutr.* 40:157-64). In their research, healthy infants two to six weeks of age were enrolled in a five-week study where they were given 1.5 or 3.0 g/L fructo-oligosaccharide-supplemented formula. Of the 72 infants completing the trial, 58 were formula fed and 14 were human milk fed. Mean counts of bifidobacteria and lactobacilli were similar in all groups at the beginning of the study, and no group experienced a significant change in counts. Formula-fed infants had higher counts of enterococci and bacteroides before FOS supplementation, and these counts did not change after supplementation. The researchers in this study concluded that it was safe to supplement infant formula with 1.5 or 3.0g/L of FOS, but that fortification had little effect on fecal flora and *C. difficile* toxin levels.

However, different results were obtained by a scientist at Numico Research who investigated the impact of formula fortified with oligosaccharides on infant intestinal microflora (Boehm, G, et al. 2005. *Acta Paediatr Suppl.* 94:18-21). He summarized research and clinical studies and concluded that a prebiotic mixture of 90% short-chain galacto-oligosaccharides and 10% long-chain fructo-oligosaccharides could stimulate the growth of bifidobacteria and lactobacilli. Fecal pH was decreased and pathogens levels were reduced to a level more similar to breastfed infants.

Clinical studies often use terminology and study designs similar to pharmaceuticals. One frequently referenced study assessed the tolerance and threshold doses of SC-FOS (short chain fructo-oligosaccharides) that would significantly increase fecal bifidobacteria levels. It also investigated the possibility of a dose-response relationship; that is, the higher the dose of prebiotic, the greater the effect (Bouhnik, Y, et al. 1999. *The Journal of Nutrition*. 129:113-116). Participants were randomly divided into groups and, while continuing with their usual diets, the 40 healthy adults also consumed two oral doses per day for seven days of a powder mixture containing 0, 2.5, 5, 10 and 20g SC-

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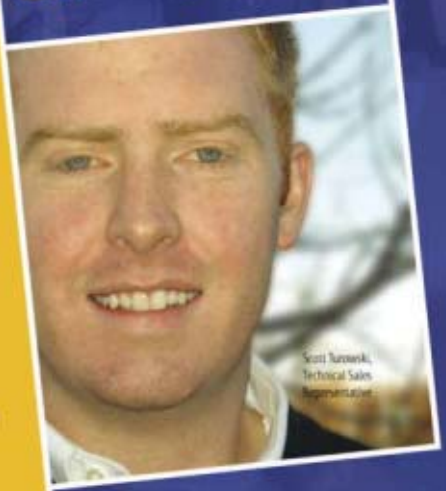
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See Food Master-*INGREDIENTS*, p. 171



A container of DanActive consists of four small doses (3.3oz each). The product has three active cultures, a simple ingredient legend ("cultured reduced fat milk, water, sugar, dextrose") and a structure/function claim ("clinically proven to help strengthen your body's defenses").

FOS. Bifidobacteria counts at the end of the week were significantly greater in the groups ingesting the 10g and 20g doses than in those who consumed zero and 2.5g. Although fecal pH did not differ among groups, there was a significant correlation between the amount of SC-FOS consumed and levels of fecal bifidobacteria. Excess flatulence was more frequent in subjects consuming 20g doses than in those consuming 5g or less. It was concluded that, based on this study, "10g/day is an optimal and well-tolerated dose of SC-FOS that significantly increased fecal bifidobacteria in healthy volunteers consuming their usual diet."

A more recent study by the same lead researcher, Yoram Bouhnik, was conducted to determine the bifidogenic potential of different nondigestible carbohydrates (NDCHs) used in human diets (Bouhnik, Y, et al. 2004. *Am J Clin Nutr*. 80:1658–64). The carefully crafted study was titled, "The capacity of nondigestible carbohydrates to stimulate fecal bifidobacteria in healthy humans: a double-blind, randomized, placebo-controlled, parallel-group, dose-response relation study." The 200 volunteers were divided into groups, and for each of seven days they consumed a placebo or one of the seven NDCHs. The SC-FOS, soybean oligosaccharides, galacto-oligosaccharides and type III resistant starch were all found to be bifidogenic. In a second phase, those NDCHs that had been bifodogenic in the first phase were given in doses of 2.5, 5.0, 7.5, 10g/day or a placebo in order to deter-



Kraft Food's LiveActive Cheedar Cheese with Probiotics's front label notes "with beneficial live active cultures" and displays a logo carrying the text "with Probiotics" in English and French.

mine whether larger doses of the NDCHs had a greater effect. The effects of the seven-day treatment on bifidobacteria concentrations were found to differ significantly among the four NDCHs. However, for any given NDCH, no significant differences were found among doses, and there was no significant dose-time interaction. What was observed was that volunteers with low initial levels of bifidobacteria showed the greatest responses to consuming a prebiotic.

Another study supporting the concept that prebiotics can most significantly improve the bifidobacterial levels of those that most need it looked at the impact of a 5g or 8g daily dose of [long-chain] inulin (Kolida, S, et al. 2007. *Eur J Clin Nutr*. Epub ahead of print January 31). Populations of Bifidobacterium, *Bacteroides-Prevotella*, *Lactobacillus-Enterococcus* and *Clostridium perfringens-histolyticum* subgroup were monitored in the feces. This research found that bifidobacteria levels increased significantly with both inulin doses as compared to the placebo control. Although a "dose response effect" was not observed, as with the 2004 Bouhnik, Y, et al. study, the greater the initial levels of probiotics, the smaller the increase upon consuming the prebiotic doses.

The good news is both scientists and consumers have come a long way in understanding many of the benefits and issues surrounding pre- and probiotics. It is also good news—due to it being an intriguing area of research with great potential for human health—that both also have a ways to go to reach a better understanding of the issues. pf

Website Resources:

www.NutraSolutions.com or www.PreparedFoods.com — Type "probiotics" or "prebiotics" into the search field on the home pages for more information on these topics

www.probioticscenter.com — For more information about probiotics

www.msnbc.msn.com/id/14903449 — Consumer information site providing an overview of commercially available probiotic products

www.stonyfield.com/Wellness/SixLiveActiveCultures.cfm — Information on Stonyfield Farms probiotic choices, their benefits and relevant clinical research

www.fbfc.com/scoop/feb01/lacto.html — Lactic acid bacteria fermentation of foods

www.springerlink.com/content/v6766kk03621g577 — Research investigating use of lactic acid cultures for fermented corn bread

www.ajcn.org/cgi/reprint/80/6/1658.pdf — Research on characterizing lactic acid bacteria from sorghum

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Experimental vs. Comforting Flavor Choices

Three mega trends—health/wellness, sensory indulgence and homing/comfort—drive consumers' flavor preferences. The choice of a flavor is influenced by product application, eating occasion and consumer characteristics.

Chris Topping, Datamonitor

Consumers' flavor preferences are divided between two trends, one based on experimentation and intensity and the other on familiar, comforting traditional flavors. These are not mutually exclusive; consumers will migrate between the two based on individual needs and external factors. Flavor choices are influenced by occasion, psychological state and life stage.

Different, but Still the Same

Datamonitor has identified three "mega-trends" that drive consumers' flavor preferences: health and wellness, sensory indulgence and homing/comfort. The desire for more adventurous and different flavor experiences is closely connected to the health and sensory indulgence mega-trends. Regarding health and wellness, consumers are attracted to more intense or strong flavor solutions; these can make healthy options more enticing and compensate for any loss of flavor due to the exclusion of ingredients that are bad for you. Natural and fresh are qualities associated with healthiness, as are lighter, zestier flavors often seen in various ethnic cuisines.

The sensory mega-trend is the most important in driving the interest of more striking flavors. It underpins the desire for more pleasure and sensation from products, and it is about seeking new experiences and taking risks and the associated emotional benefits. Healthy products may "do good," but consumers also crave products that make them "feel good." In addition to intensity, authenticity is a factor and intrinsically tied to consumers' desires for more sophisticated, higher quality products. Foods that deliver sensory gratification are likely to make consumers willing to trade up. The growing market for gourmet indulgences such as super-premium and luxury dark chocolate is a key example.

Flavoring has long driven the success of new products. Increasing evidence shows consumers choose flavor over brand loyalty.

In contrast to the first two mega-trends, the homing/comfort trend is a driver behind the persisting fondness for traditional, more straightforward flavors. It emphasizes safety and a retreat to one's "comfort zone" and a sense of nostalgia. In food flavor terms, it consists of both the strictly traditional and the newer, relatively mild reformulations that introduce non-traditional flavors at a level deemed acceptable and unobtrusive. At the same time, it is enough to differentiate a product and inspire interest among even relatively conservative consumers. Comfort foods are also strongly associated with self-indulgence, whether in the form of everyday snacking and sweet flavors or the consumption of more overtly indulgent products.



The Wm. Wrigley, Jr. Company's new Mint Mojito-flavored Orbit gum "provides an exotic cooling sensation that is recognizably different from existing gum flavor profiles," yet still retains a basic familiarity for consumers.

PHOTO COURTESY OF BUSINESS WIRE

More flavorful experiences are associated with quality. Consumers expect more from their meals, have a more sophisticated appreciation of flavor and are willing to trade up in order to accommodate these factors. This is a product of rising affluence, proliferating product choice, attention-seeking "me-centric" marketing messages and an increasingly individualistic society that has directed consumers' focus towards getting the best. Higher quality and authenticity are associated with health. Authentic is also associated with natural, which is often expected in premium offerings.

The success of ethnic food has been driven by a willingness to experiment. Ethnic food's cemented role in the modern marketplace in the U.S. and Europe is probably the primary indicator of consumers' willingness to branch out and embrace new flavor experiences. The success of ethnic foods is bringing hotter, spicier and more striking flavor profiles into the mainstream experience, thus encouraging development of the next level of flavor differentiation. Of the three consumer mega-trends, health/wellness and sensory indulgence are strongly associated with the ethnic food trend. Ethnic foods are often oriented around fresh ingredients and can offer lighter but more fragrant flavors that appeal to those seeking a healthy but satisfying eating experience. They offer sensory indulgence based on bolder flavors and the desire for premium food with greater authenticity. The U.S. is the largest market for ethnic food, with sales rising at a compound annual growth rate (CAGR) of 4.5% between 2000 and 2005. Ethnic foods now account for around 12% of U.S. overall food sales. At a value of U.S.$2.6 billion, the U.K. accounts for over half of ethnic food sales in Europe, and Datamonitor forecasts a relatively similar picture by 2010, although sales' growth will be stronger in other European markets.

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Traditional flavors remain popular, often with a twist. Despite a rapidly broadening market and a more inquisitive and discerning consumer base, there is a firmly traditional flavor culture largely resistant to change. The homing/comfort mega-trend is suggestive of the trend clash in flavor preferences. Authenticity is also an important factor in traditional flavors. Authentic ingredients and flavors bring nostalgia to consumers. One attitude connected with comfort is that there is too much choice when making purchase decisions; some consumers find too much complexity in shopping. The reaction to this is to seek greater simplicity with roasted, smoked, grilled and other flavors commonly associated with a homey, straightforward feel.

Novel twists on the traditional offer a "safe risk." The market is benefiting from the continuing emergence of "bolder staples." This shows the tension between the desire for comfort and familiarity with a simultaneous willingness to experiment and sample the more unusual. Consumer interest is growing in comfort foods with a novel twist, as they offer subtle variations on the familiar, without undermining the essential nature of the product.

Increasing the sensory intensity of traditional flavor combinations adds an edge of contemporary flair to the product in question. Potato chips are essentially a staple snack in Western markets with typical core flavors such as cheese and onion, ready salted, and salt and vinegar. In catering to an increasingly premium-focused audience, producers are introducing non-traditional flavor influences. Walker's Sensations range of potato chips is a good example of such flavors, which offer augmentation of ranges rather than replacement of traditional flavors, which may risk alienating some consumers. Some of the varieties in the line are: Vintage Cheddar & Red Onion Chutney; Oven Roasted Chicken with Lemon & Thyme; Slow Roasted Lamb with Moroccan Spices; Gently Infused Lime & Thai Spices; and Thai Sweet Chilli.

The Time of Your Life

Life stage has an impact on consumers' flavor choices. It would be easy to assume that younger consumers are most likely to be adventurous in their food and flavor choices

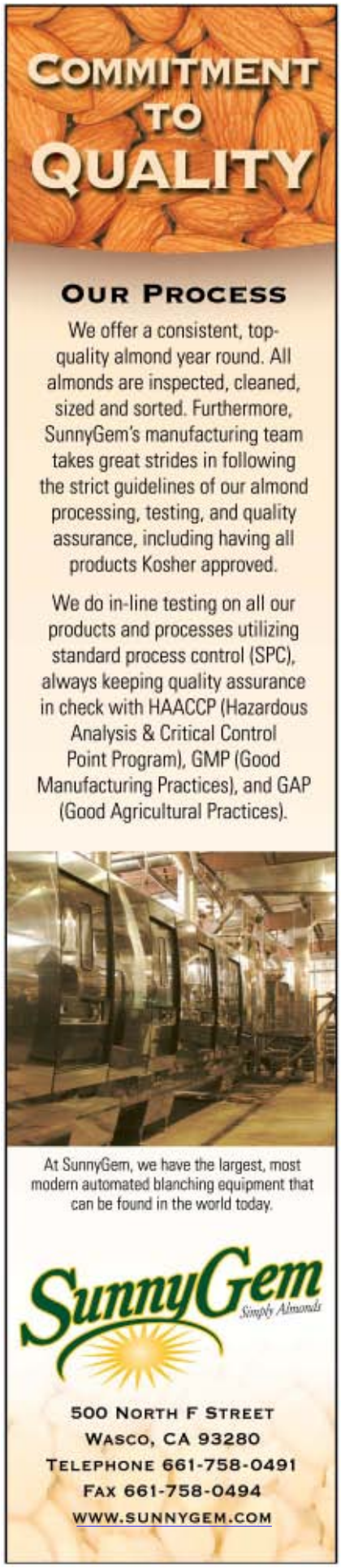
Showcase: continued



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ingredient challenges



Not surprisingly, children tend to prefer sweeter flavors, but their flavor preferences and resistance to certain foods change with maturity.

and to automatically associate older consumers with more traditional flavor trends, but this is not the case. Ethnic foods are now sufficiently mainstream to encompass the whole of society, while traditional flavors have equally widespread appeal with strong emergent patterns of consumption among younger consumers.

Recent scientific research has found that children's flavor preferences are genetically influenced, with preferences for sweet flavors often prevalent. This adds to the difficulty of promoting healthy eating in children. However, children's flavor preferences and resistance to certain foods change with maturity, while culture and other outside influences also begin to have more impact on overriding genetic/physiological reactions to flavor.

In contrast, adults' flavor preferences tend to be influenced by cultural norms. Many common tastes are accepted with age and over time. For example, men's flavor preferences typically orient towards hot, hearty foods and more savory flavors (steaks, etc.). This could be due to the macho stereo-



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Natural and fresh are qualities associated with healthiness, as are lighter, zestier flavors often seen in various types of ethnic cuisine.

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type, with choices influenced by the cultural norm of the male image. It has also been suggested that upbringing plays a role; men gravitate towards these flavors and foods because they are used to having such meals prepared for them. Women, on the other hand, tend to prefer sweeter flavors and are more likely to desire snack-like comfort foods that are more convenient and less preparation-intensive—possibly a reaction to their traditional involvement in food preparation.

Datamonitor research has found that young adults are one of the most conservative demographics and the least likely to try new flavors, with 18-24 year olds consuming one third less ethnic food than the average adult. They are most likely to see ethnic foods as part of the mainstream, having been exposed to a wide range from an early age. Seniors, however, are recognized as needing stronger and more exotic flavors, and the expansion of the 50+ demographic group in the West could fuel flavor development. Furthermore, a decline in taste and smell sensations with age means that flavor is an important consideration—foods that younger consumers perceive as tasting fine may appear bland to seniors. On the other hand, they also represent a significant market for the "bolder staples." A heightened need for stronger but not extreme flavors suggests that enhanced versions of traditional comfort foods would be well received.

Trading Up

Food flavors and the polarized trends for traditional versus the adventurous are strongly related to occasion. Although indulgence and trading up are becoming more associated with everyday occasions, there are still occasions and locations that trigger premiumization. Consumers are more likely to embrace premium products when entertaining at home, on special occasions or when vacationing. They also tend to premiumize in the evening,





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See Food Master-*INGREDIENTS*, p. 66

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See Food Master-*INGREDIENTS*, p. 169



Rich, indulgent desserts with chocolate are preferred by women, who are more likely to desire sweeter comfort foods.

and aligning products to these occasions can enhance the cachet credentials of brands. Flavor becomes more important in these settings, as it comes under greater scrutiny and is subject to higher expectations. This is true for more traditional flavors and more intense or newer ones.

Consumers are eating out with growing frequency, and foodservice is still the key environment in which to expose consumers to new flavors and eating experiences. Diners are more open to experimentation, and success through this channel can filter down to retail sales. Time-pressed consumers seek more elaborate and flavorful meal solutions, and there is a common belief that consumers cannot achieve foodservice quality and taste at home.

Convenience food is the obvious solution, but is often viewed by consumers as weak on taste and quality. More effort is needed to challenge this perception. Frozen food faces a particular challenge in this respect, as it is often viewed as more "processed." Recently, it has lost ground to chilled food, which has been marketed as and is widely perceived as fresher and more premium. However, evidence suggests that marketers can push frozen food as being more flavorful based on the idea that the freezing process "locks in" the flavor, making premium positioning possible.

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It is important for marketers to consider likely meal occasions and target audiences and differentiate between them, adjusting flavor profiles accordingly. Family settings encourage consumption of comfort foods or homey, traditional flavors. Meal events with wider socializing aspects are likely to encourage experimentation.

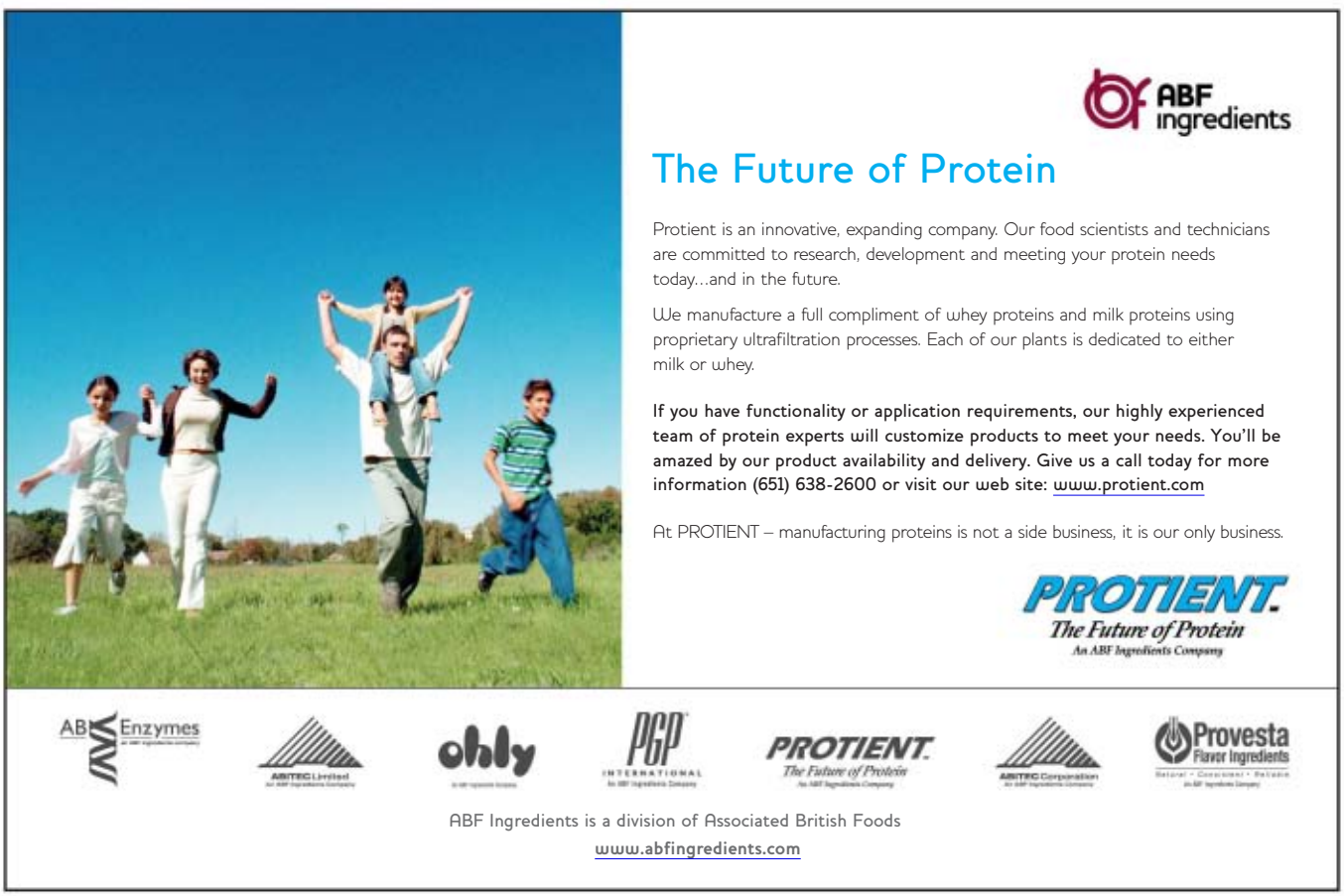
Healthy and with Good Taste

Many consumers equate healthy with bland flavors. Consumers generally want to eat more healthily, which is a pattern embraced increasingly in recent years. However, consumers often lack the willpower to stick to their good intentions. Even in the face of health, consumers will not purchase a product if it does not taste good. A Datamonitor survey in the U.S. and Europe revealed that 80% of men and women agreed that companies need to enhance the flavor and tastiness of healthy products. Therefore, achieving a balance between health and taste is often seen as a key challenge for manufacturers. Consumers often find "good-for-you" foods with less flavor do not satisfy them enough and therefore find themselves turning to less desireable, but more flavorful alternatives. Ethnic or spicy foods can offer a better solution, as they tend to offer lighter, zestier flavors based on fragrant herbs and spices. There is also a strong focus on fresh vegetables and meat, and the sensory indulgence associated with ethnic foods offers compensation for loss of flavor or premium experience associated with many healthy reformulations.

There is increasing evidence that consumers are choosing flavor over brand loyalty. High expenditure on brand marketing is undermined if the product does not actually taste good compared to its peers, or the range under that brand name lacks variety. This is particularly relevant where healthy products are concerned.

The food market, both retail and foodservice, has widened in scope in recent years. This increasing diversity is being driven largely by consumers' desires for an enhanced flavor experience, higher expectations of what food should provide in terms of satisfaction and a variety of related factors. The trend is set to continue, placing the onus on producers and marketers to understand consumers' motivations and respond flexibly. PF

Datamonitor offers a full range of data and analysis for the food and beverage industry. Its research products feature primary data, independent analysis and fresh opinions on markets, trends and players. For more information, go to www.datamonitor.com.



See Food Master-*INGREDIENTS*, p. 162



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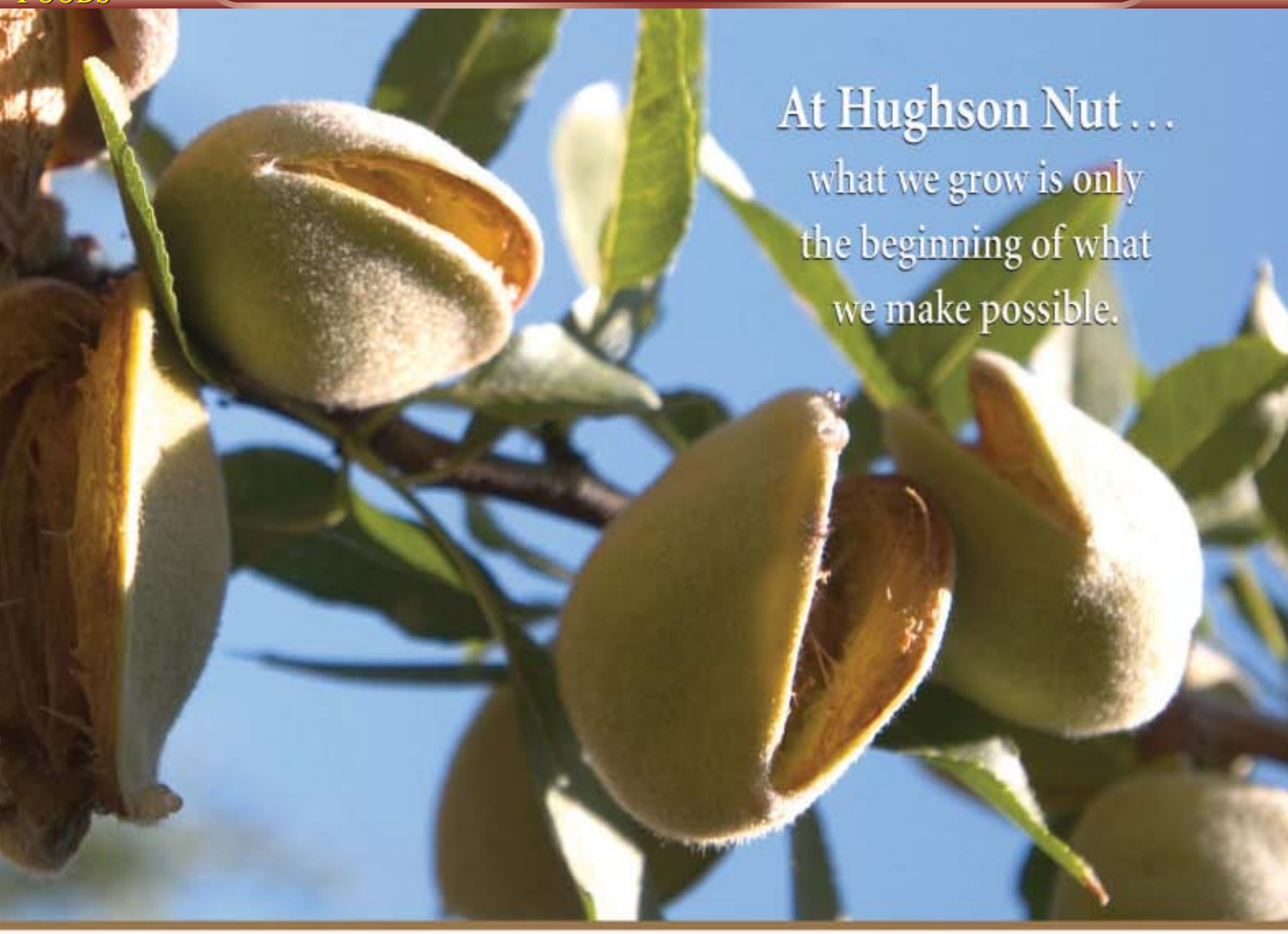
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Breakfast Bars and Cereals 101

With a reputation as the most important meal of the day, the breakfast category continues to expand. Attendees of *Prepared Foods*' 2006 R&D Seminar learned that consumers are lured to breakfast foods by inclusions such as almonds, soy and dairy proteins and whole grains such as barley.



Sensory Characteristics of Almonds

Almonds are perceived by consumers as being a healthy product. A poll (Sterling-Rice Group, 2006) revealed that 82% of consumers polled believe that a product that contains almonds is better nutritionally, and 73% feel that almonds are heart healthy. Almonds appear in many breakfast foods and add value as inclusions in breakfast pastries, cereal bars and cereals.

The Almond Board of California funded a project to better define almond flavor and texture, something that had never been done before. It contracted Sensory Spectrum Inc. to develop standard methods for evaluating appearance, aroma, flavor and texture. Part of the project was to develop standard language and descriptors for each of these areas.

The consultants worked with seven almond varieties including Nonpareil, Carmel, Butte, Fritz, Mission, Sonora and Monterey that represent over 80% of California almond production. For appearance, the group looked at hue, color intensity, chroma, visual roughness and skin integrity. The descriptors for aroma include total almond impact, almond nut meat, dark roast, benzaldehyde, woody/tea, vegetable oil/beany/squash, sweet aromatic/caramelized and cardboard. The flavor descriptors were more extensive than those established for aroma but did, however, include a number of the same terms. Scoring for all attributes was based on a zero to 15-point scale, where zero was none and 15 was very strong.

The investigative work indicated that almond aroma, flavor and taste were fairly similar between different varieties (see chart "Almond Flavor Range"). As is demonstrated by the figure, there is also rather significant variation within varieties themselves, especially in regards to flavor. However, texture attributes such as force to grind, crunch/snap and hardness showed greater variability.

Almonds are available in many forms such as whole, sliced, diced, slivered and meal, as both natural and blanched, plus other forms such as almond butter, almond paste and almond oil. They may be used in products such as nutrition bars, candies,



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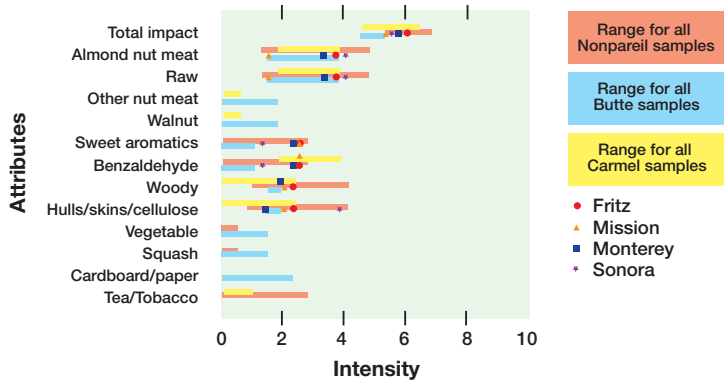
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Almond Flavor Range



Source: Almond Board of California/Sensory Spectrum Inc.

New research shows that different varieties of almonds share fairly similar aroma, flavor and taste characteristics.

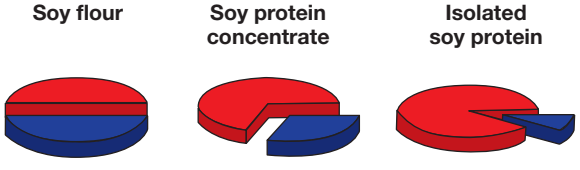
cereals, bakery products, or simply as flavored or un-flavored snacks. There is variability amongst the different varieties of almonds, but when it comes to flavor and aroma, this variation is surprisingly small. Almonds have a subtle flavor with a relatively low intensity. This makes almonds unique to complement with other ingredients in a product formulation without overtaking primary flavor of a formulation.

"Assessment of the Natural Sensory Variability of Almonds—New Research on Sensory Characteristics of Almonds," Huang Guangwei, senior manager, Scientific and Technical Affairs. Almond Board of California, ghuang@almondboard.com
—Summary by Richard F. Stier, Contributing Editor

Soy Proteins in Beverages, Bars and Snacks

Soy protein is an excellent source of complete protein (it contains all essential amino acids), is low in saturated fat and is cholesterol-free. The FDA allows food processors to make health claims for foods that contain soy protein if the food contains at least 6.25g of soy protein per serving and that food is low in fat, saturated fat, cholesterol and sodium. Foods made from whole soybeans will qualify, provided they contain no added fat.

Soy Protein Comparisons



*Protein percent on a moisture-free basis

Source: Archer Daniels Midland Company (ADM)

Soy flour, soy protein concentrate and isolated soy protein are the three major protein-based ingredients isolated from soybeans. They contain approximately 50%, 70% and 90% protein, respectively. The remaining soybean components include carbohydrates, lipids, vitamins and minerals.



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See Food Master-*INGREDIENTS*, p. 152-153

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The soybean is a unique product. Among the products routinely manufactured from the bean are textured soy flour, soy flour, refined oil, soy lethicin, isolated soy protein, textured soy protein concentrate, soy protein concentrate and a range of phytochemicals and nutraceuticals. The three major proteins isolated from soybeans are, therefore, soy flour, soy protein concentrate and isolated soy protein, which contain approximately 50%, 70% and 90% protein, respectively (see chart "Soy Protein Comparisons"). These products have unique functional properties that include dispersibility, solubility, viscosity, foaming, gelation and emulsification.

Soy proteins may be incorporated into many different foods such as soy protein beverages, nutrition bars, breakfast bars and cereals, and snack foods. The driving forces in the beverage industry have been health claims, the increasing number of vegetarians, and improved processing and flavors in finished products. A market that was estimated at $622 million in 2003 is expected to triple by 2010. There are two basic categories of soy beverages. These are ready-to-drink and powdered products. Keys to use are proper hydration of the protein, homogenization and use of the appropriate stabilizers. Soy also may impart off-flavors to products. These include beany-ness, bitterness and astringency. These flavors can be minimized or masked by selection of the proper protein, the incorporation of masking agents into the formula or through the use of cream or dairy flavors. Acidified beverages require special processing, which includes minimizing air incorporation to prevent foaming and the use of pectin in combination with xanthan gum or alginate in the stabilizer system.

Soy protein and nuggets are commonly used in value-added health and nutrition bars. The nutrition bar market is currently a $3 billion a year industry. When using soy in nutrition bars, the main challenge to the developer is to manipulate water binding. Higher water binding results in increased bar firming over time.



See Food Master-*INGREDIENTS*, p. 112

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Soy proteins may be incorporated into cookies, crackers, candies, snack chips, jerky, frozen desserts and yogurt. The primary uses of soy proteins in snack foods are fat reduction and nutritional enhancement. Processors may use the three soy proteins mentioned earlier, plus they can use soy nuts or soy grits. Soy nuts may be used as a topping, plus they will enhance texture.

"Soy Protein Applications in Nutritional Beverages, Bars and Snack Foods," Archer Daniels Midland Company (ADM), Lisa L. Bradford, soy foods technologist II, Lisa_Bradford@admworld.com, www.admworld.com
—Summary by Richard F. Stier, Contributing Editor

Formulating Healthier Foods with Barley Ingredients

Increased use of whole grains is a trend seen in the breakfast cereal and bar segment. Barley, known to many as the grain from which malt is made, is experiencing a surge in use. The driving forces include the push to incorporate more whole grains into foods, barley's association with better health, the movement towards foods that have a reduced Glycemic Index (GI) and consumer demands for artesian and varietal foods.

Whole grains contain all parts of the grain, including the bran, the germ and the endosperm, in approximately the same proportion as the original grain. Whole grain foods use grains that are milled, crushed or flaked. For the uninitiated, the bran is the outer shell, which protects the seed, the germ provides nourishment for the seed and contains vitamins and trace minerals, and the endosperm provides energy. (See chart "What is a Whole Grain?")

Recent research indicates that consumption of whole grains can reduce the risk of developing diseases such as coronary heart disease, cancer and even reduce mortality. Whole grains improve health of the gut and can reduce obesity and diabetes. At this time, whole grains make up approximately 13% of the grains consumed by Americans. For better health, the USDA recommends that this should be increased to 50%.

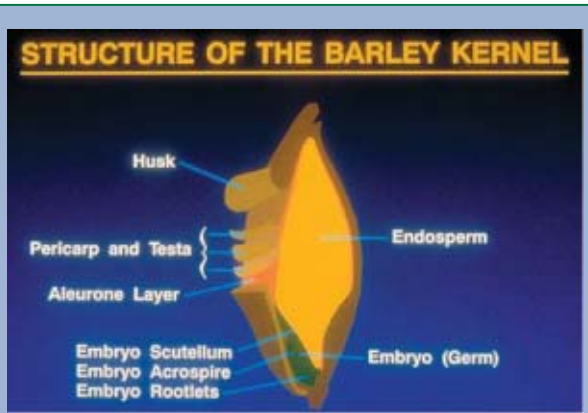
Barley is an underutilized whole grain. Whole grains are low in fat, high in fiber, low in cholesterol and an excellent source of other nutrients. Barley has the highest levels of any grain of the healthy soluble fiber, beta glucan. They can reduce the risk of cancer and heart disease, thereby allowing the manufacturer to make certain health claims. An example would be: "Low fat diets, rich in fiber containing grain products, fruits and vegetables may reduce the risk of some types of cancer, a disease associated with many factors."

Using raw whole kernel barley has some difficulties. The husk material is gritty and may contribute bitter notes to foods, and the raw grain requires a long time to cook. However, raw forms of barley are available without the husk. Whole grain products include barley, hulless barley, waxy hulless barley and de-hulled barley. Another product used by many cooks in soups and as a thickening agent is pearled barley. Pearled barley has the outer husk and bran layer removed. It has a light creamy color and a reduced cook time.

What is a Whole Grain?

- Bran = Outer shell (protects seed)
  - Fiber
  - Trace minerals
  - B vitamins
- Germ = Nourishment for seed
  - B vitamins
  - Vitamin E
  - Trace minerals
  - Phytochemicals
- Endosperm = Provides energy
  - Carbohydrates
  - Protein
  - Some B vitamins

Source: Briess Malt & Ingredients Company



Whole grains contain all parts of the grain, including the bran, the germ and the endosperm. A variety of nutrients can be found in these components.

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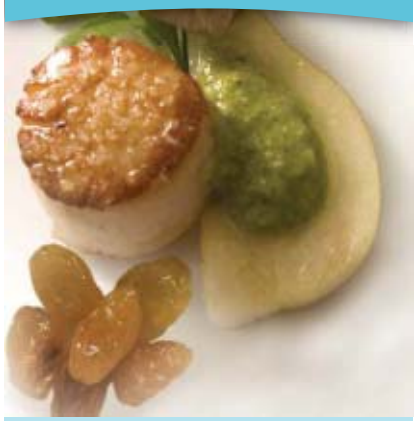
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Del Grande often deploys California Raisins in novel combinations with salty, crunchy, spicy and smoky ingredients. This cooks up to a complex spectrum of subtle and balanced flavors, from the deep and earthy to the highly aromatic. His recipe for Sea Scallops with Green Salsa with California Raisins and Pears (featured above) is the perfect balance of sweet, succulent and savory.



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Robert Del Grande,
Executive Chef and Owner
Café Annie Houston, Texas

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Reduced cook time can also be achieved by using barley that has been pre-cooked, steamflaked or pregelatinized. These naturally processed products may be sold as pre-gelatinized whole kernels, flours or flakes. They can have cook times anywhere from one to 25 minutes (vs. 45 minutes for raw) and can be directly incorporated into baked goods, nutrition bars, breakfast bars and cereals, soups, gravies, sauces and side dishes. Processors can select the option that best meets their needs.

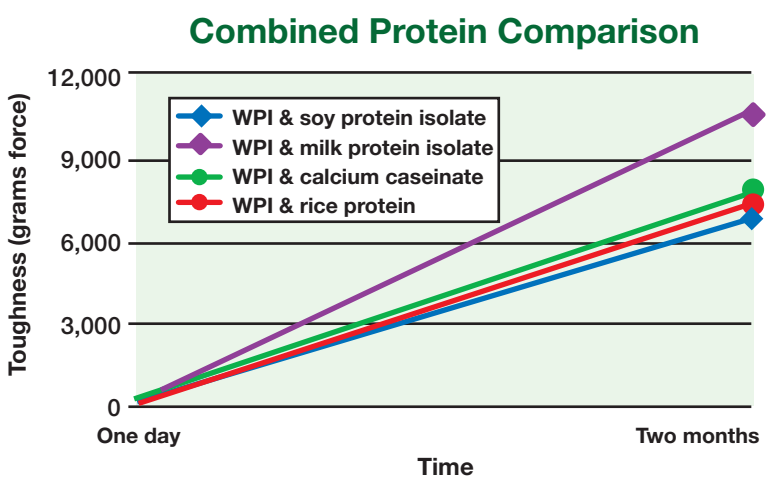
"Formulating Healthier Foods with Barley Ingredients," Briess Malt & Ingredients Company, Bob Hansen, manager of technical services, bob.hansen@briess.com, www.briess.com
—Summary by Richard F. Stier, Contributing Editor

Dairy Proteins in Nutrition Bars

A popular food format, nutrition bars include protein bars, bars formulated expressly for women's needs, low-carbohydrate products, meal and snack bars, breakfast bars and energy products. Whey protein has been a favored component of athletes and body builders, because bars and other nutritional products formulated with whey have high quality protein.

Whey protein isolates pose product developers with challenges, but they also offer significant benefits. These advantages include being a high-quality protein source and having a clean and creamy flavor. Additionally, they may be used in a variety of nutritional and food bars and can be modified to overcome challenges. Among the difficulties facing potential users is the fact that bars tend to harden over time and can develop stickiness.

All product developers look for a means to find answers more quickly. One company uses accelerated shelflife studies (55% relative humidity at 95°F) plus texture analysis to predict product performance more accurately. One month at the accelerated conditions is equivalent to three months at ambient conditions.



Source: Glanbia Nutritionals Inc.

Ingredient interactions are a key consideration in formulating products. Here, the toughness of a model nutrition bar formulated with whey protein isolate is highly dependent upon the other types of protein used.

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Not all proteins are created equal (see chart "Combined Protein Comparison"). As the accompanying graphic shows, formulating a nutritional bar using the following basic test formula of 39.9% protein, 51.3% polyol syrup and 8.8% fat produced different results for toughness/texture using four different whey and other protein combinations.

Changing the fat source or type of fat used in nutritional bars will also affect overall texture. Using the same basic formula noted above, texture changes become more pronounced as developers moved from cocoa butter to peanut butter to shortening and, finally, to vegetable oil. The harder the fat, the less textural change is observed over time. Similar changes may be seen as the syrup component is changed from glycerin to high fructose corn syrup to maltitol.

The bottom line is that formulation has significant effects on overall acceptance and texture. Nutritional bar manufacturers should work with their vendors to select the proteins and other ingredients that best meet their needs.

"Use and Functionality of Dairy Proteins in Nutrition Bar Applications," Jessica A. Marshall, food technologist, Glanbia Nutritionals Inc., jmarshall@glanbiausa.com, www.glanbiausa.com
—Summary by Richard F. Stier, Contributing Editor



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Monday, Sept. 17, 2007: Applications Challenges

A complete list of presentations as of 4/29/2007. Subject to change.

TRACK: PROCESSED MEATS

8:30-9:10 a.m. **Choosing the Right Enzyme for Your Marinade/Tenderizing System**
Speaker: Peter Moodie, Director Sales & Marketing, Enzyme Development Corporation

9:15-9:55 a.m. **Use of Antimicrobials and Antioxidants in Food Products**
Speaker: David Grex, IsoStat Division, Technical Sales Manager, Newly Weds Foods Inc.

TRACK: FLAVORS & COLORS

1:00-1:40 p.m. **Natural Solution to Coloring Foods**
Speaker: Zohar Nir, VP NPD & Scientific Affairs, LycoRed Ltd. Beer-Sheva Israel

TRACK: BAKED GOODS

8:30-9:10 a.m. **Chemical Leaveners in Bakery Applications**
Speaker: EB Russell, Technical Manager, Budenheim

9:15-9:55 a.m. **Flavoring Bakery Products**
Speaker: Agneta Weisz, Vice President Research & Development, Comax Flavors

10:30-11:10 a.m. **Naturally Stabilized Omega 3 Flax System**
Speaker: Mary Ekman, General Manager – USA, Pizzey's Milling USA

11:15-11:55 a.m. **Hitting a New Market: Delicious Vegan Baked Goods**
Speaker: Christine L. Garcia, Lead Counsel, The Animal Law Office

1:00-1:40 p.m. **Extending and/or Replacing Fruit with Flavored Particulates**
Speaker: Elaine Hoehn, Manager R&D, SensoryEffects (A PCI Food Ingredients Business)

1:45-2:25 p.m. **Enter the World of Sourdoughs**
Speaker: Christophe Dewilde, Business Development - Bakery Flavors, Puratos Corporation

TRACK: SAUCES & MARINADES

8:30-9:10 a.m. **Winning Sauces with Thermal Gelling Hydrocolloids**
Speaker: Mary Jean Cash, Senior Staff Scientist, Aqualon Division of Hercules Inc.

9:15-9:55 a.m. **Hydration of Water Soluble Polymers**
Speaker: Ross Clark, Distinguished Research Fellow, CP Kelco

TRACK: FATS & OILS

1:00-1:40 p.m. **Plan Your Oils Future Today: Formulating with Enhanced Soybean Oils**
Speaker: Richard Galloway, President, Galloway & Associates for United Soybean Board

TRACK: STARCHES, GUMS & FIBER

8:30-9:10 a.m. **Gum 101**
Speaker: Allen Freed, President/CEO, Gum Technology Corp.

9:15-9:55 p.m. **Modified Gum Acacia: A Potential Replacer for Gum Arabic and Modified Food Starch**
Speaker: Nabil Naouli, Principal Scientist, TIC Gums Inc.

10:30-11:10 a.m. **Functional Fibers for Grain Products**
Speaker: Jit Ang, EVP, Research & Development, International Fiber Corp.

TRACK: SPORTS & ENERGY DRINKS

1:00-1:40 p.m. **Fortifying Beverage Profits via Whey Protein Fortification**
Speaker: Starla Paulsen, Applications Department Manager, Glanbia Nutritionals

1:45-2:25 p.m. **Keep Going: Formulating Foods & Beverages for Sustained Energy**
Speaker: Marion Dalacker, Director, Market Strategies, WILD Flavors Inc.

2:30-3:10 p.m. **Mineral Fortified Beverages**
Speaker: TBD, PURAC America Inc.

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85% of 2006 R&D Attendees were extremely pleased with Seminar Session topics and the technical level of the presentations.

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Monday, Sept. 17, 2007: Applications Challenges

A complete list of presentations as of 4/29/2007. Subject to change.

TRACK : ORGANIC, ALLERGEN-FREE & LABELING

8:30-9:10 a.m. **Food Labelling Challenges: A Global Perpsective**
Speaker: Jean Theiss, Director, Regulatory and Technical Information Systems, Newly Weds Foods Inc.

9:15-9:55 a.m. **The Latest on Vegan Marketing, Labeling and Liability**
Speaker: Christine L. Garcia, Lead Counsel, The Animal Law Office

10:30-11:10 a.m. **Better Gluten-Free Products Using Specialty Starch**
Speaker: Eric Shinsato, Technical Sales Support Manager, Corn Products International Inc.

11:15-11:55 a.m. **Organic Revolution: What It Really Means**
Speaker: Greg Bach, Director of Product Development, Synergy Flavors Inc.

TRACK: NEW EMERGING INGREDIENTS

1:00-1:40 p.m. **Nutritional and Functional Benefits of Okara in Various Food Systems**
Speaker: Melanie T. Dineen, Applications Technologist, SunOpta Ingredients Group

TRACK: INGREDIENT SYSTEMS FOR WEIGHT MANAGEMENT PRODUCTS

8:30-9:10 a.m. **Innovative Solutions for Formulating Weight and Glycemic Management Products**
Speaker: Cristina Munteanu, Food Applications Specialist, GTC Nutrition

9:15-9:55 a.m. **New Developments in the Applications for a New Proprietary Fractionated White Bean Extract to Reduce Carbohydrate Absorption**
Speaker: Kanak Udani, Consultant, Pharmachem Laboratories Inc.

10:30-11:10 a.m. **Application of Insoluble, Refined Fibers in Weight Management Products**
Speaker: Jon Bodner, Senior Manager – Applications, J. Rettenmaier

11:15-11:55 a.m. **Slowly Digestible Carbohydrates (SDC) for Control Glycemic Index (GI) Foods**
Speaker: Sakharam K. Patil, President, S.K. Patil & Associates

TRACK: HEALTHFUL FORMULATIONS

1:00-1:40 p.m. **Correlating Nutrition and Health with Your Beverage Brand**
Speaker: Jessica Jones-Dille, Industry Trend Manager, WILD Flavors Inc.

1:45-2:25 p.m. **Taste Matters when Creating Healthy Foods: Understanding How Taste Modifiers Work**
Speaker: Mariano Gascon, Flavor Lab Director, Wixon Inc.

2:30-3:10 p.m. **Formulating Functional Foods with Long Chain Omega-3s**
Speaker: Valerie Sanders, Food Applications Scientist, OmegaPure

3:15-3:55 p.m. **Functional and Nutritional: Egg Products Fit the Future of Formulation**
Speaker: Shelly McKee, Professor of Poultry Science, Auburn University and Marcia Greenblum, M.S., R.D., Director of Educational Outreach, Egg Nutrition Center, Washington, DC

TRACK: APPLICATION LABS

8:30-9:55 a.m. **Customizing Sensory Attributes via Hydrocolloids**
Speaker: CP Kelco

10:30-11:10 a.m. **"Meat" New Trends with Innovative Phosphates**
Speaker: Gene Brotsky, Sr. Technical Service Representative, Innophos Inc.

11:15-11:55 a.m. **Fortify Beverages "Clearly Better" with Calcium Phosphate**
Speaker: Amr Shaheed, Sr. Scientist II, Innophos

1:00-2:25 p.m. **Dried Plums: Natural Solution To Maintaining Shelf Life**
Speaker: James Degen and Jimmy Keeton, Consultants, Faculty Texas A&M University, California Dried Plum Board.

2:30-3:55 p.m. **Natural Colors in Beverages and Confections**
Speaker: GNT USA Inc.

Tuesday, Sept. 18, 2007: Applications Challenges

A complete list of presentations as of 4/29/2007. Subject to change.

TRACK: PREPARED FOODS

8:30-9:10 a.m. **Industry Trends**
Speaker: Michael R. Buttshaw, National Sales and Marketing Manager, Hormel Specialty Products, Hormel Foods Corporation

9:15-9:55 a.m. **The Functional Advantages of Nutritive Sweeteners and Juice Concentrates**
Speaker: David Ropa, VP Marketing, TJP Market Development

10:30-11:10 a.m. **Prepared Meals Made Healthy by Fortifying with Omega-3**
Speaker: Sharon Spurvey, Director, Technical Services, Ocean Nutrition Canada

11:15-11:55 a.m. **Use of Palm Oil in Baking and Food Service**
Speaker: Harold Kazier, Applications and Technical Services Manager, Loders Croklaan

1:00-1:40 p.m. **Natural Preservation Systems**
Speaker: TBD, PURAC America Inc.

1:45-2:25 p.m. **Yeast Extracts and Umami Taste - Tools for Sodium Reduction in Food**
Speaker: Otis Curtis, Business Development Manager, DSM Food Specialties, Inc. Savory Ingredients

TRACK: NUTRITIONAL BEVERAGES & FOODS

8:30-9:10 a.m. **Beverage Flavor Radar**
Speaker: Cara Newkirk, Senior Market Manager, FONA International Inc.

9:15-9:55 a.m. **Innovative Food and Beverage Fortification with Natural Tomato Lycopene**
Speaker: Zohar Nir, VP NPD & Scientific Affairs, LycoRed Ltd. Beer-Sheva Israel

10:30-11:10 a.m. **The Use of Dextrin Soluble Fiber in Healthy Confectionery Products**
Speaker: Tom Parady, Associate Program Coordinator, Food Applications, Roquette America Inc.

11:15-11:55 a.m. **Overcoming Formulation Problems with Dissolved Calcium**
Speaker: Daniel Sortwell, Senior Food Scientist, Bartek Ingredients Inc.

TRACK: FLAVORS & FLAVOR ENHANCEMENT

1:00-1:40 p.m. **Acidulant Taste and Flavor Effects**
Speaker: Daniel Sortwell, Senior Food Scientist, Bartek Ingredients Inc.

1:45-2:25 p.m. **Use of Dairy Flavors in Cost Optimization Projects**
Speaker: Marilyn Stieve, Dir of Marketing- Dairy Flavors and Priscilla Reeves, Product Development Manager- Dairy Flavors, Chr. Hansen

2:30-3:10 p.m. **Masking Flavors**
Speaker: Agneta Weisz, Vice President Research & Development, Comax Flavors

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Tuesday, Sept. 18, 2007: Applications Challenges

A complete list of presentations as of 4/29/2007. Subject to change.

TRACK: DAIRY & FROZEN NOVELTY

8:30-9:10 a.m. **Stabilizing Dairy and Soy Drinks with Pectin and other Fruit Fibers**
Speaker: Frank Mattes, Sales Manager, Herbstreith & Fox Inc.

9:15-9:55 a.m. **High Protein Frozen Desserts: Extending the Nutritional Revolution to Frozen Desserts**
Speaker: Phil Rakes, Technical Specialist, Main Street Ingredients

10:30-11:10 a.m. **Reduction of Sugar and Calories in Cultured Dairy Products**
Speaker: Clement Opawumi, Senior Food Scientist, SPI Polyols Inc.

1:00-1:40 p.m. **New Product Development Software for Specific Vertical Markets in the Food and Beverage Industries (Ice Cream/Dairy, Bakery, Beverages)**
Speaker: Ted Pliakos, Vice President-Sales, Advanced Software Designs

TRACK: HEALTHFUL FORMULATIONS

8:30-9:10 a.m. **Formulating with Wheat Proteins**
Speaker: Brook Carson, Technical Product Manager, ADM Milling Co.

9:15-9:55 a.m. **Optimized Combinations of Fibers Used As Nutritional Stabilizers**
Speaker: Sebastien Baray, Technical Manager, Colloides Naturels Inc.

10:30-11:10 a.m. **Creating Customized Formulations for Improved Immune and Digestive Health Using Innovative Ingredient Solutions**
Speaker: Cristina Munteanu, Food Applications Specialist, GTC Nutrition

11:15-11:55 a.m. **Omega-3 Fortification of Products for Children and Women**
Speaker: John Foley, Technical Services, BASF Corporation

1:00-1:40 p.m. **New Nutritional Ingredients for "Healthy Heart" and "Healthy Bones"**
Speaker: Rodger Jonas, National Business Development Manager, P.L. Thomas

TRACK: NEW EMERGING INGREDIENTS

8:30-9:10 a.m. **Designing Healthful Spray Dried Powdered Emulsified Systems**
Speaker: Joan Haselman, R&D Manager, Diehl Food Ingredients (A PCI Food Ingredients Division)

9:15-9:55 a.m. **Sodium Acid Sulfate**
Speaker: Carl Knueven, Corporate Manager - Product DevelopmentJones-Hamilton Co.

10:30-11:10 a.m. **Natural Ingredients for Preservation of Carotenoids and Related Ingredients**
Speaker: Rodger Jonas, National Business Development Manager, P.L. Thomas

TRACK: BREAKFAST CEREALS, SNACKS & BARS

1:00-1:40 p.m. **Raising the Bar**
Speaker: Robert Hansen, Manager of Technical Services, Briess Malt & Ingredients

TRACK: PRODUCT DEVELOPMENT ADVANCES

8:30-9:10 a.m. **Tools for Effective NPD - People, Products & Processes**
Speaker: Allan Samson, President, ESCA Enterprises Inc.

9:15-9:55 a.m. **Kids Say the Darndest Things! - Incorporating Kids in Product Development**
Speaker: Judy Lindsey, VP & General Manager, Product Dynamics, a division of RQA Inc.

10:30-11:10 a.m. **Research and Development Tax Credits: The Hidden Treasure**
Speaker: Terry Schwartz, Managing Director, RSM McGladrey Inc.

11:15-11:55 a.m. **Utilizing Workflow/Approval Routing to Facilitate the New Product Development Process**
Speaker: Ted Pliakos, Vice President-Sales, Advanced Software Designs

TRACK: CONFECTIONERY & DESSERTS

1:00 – 1:40 p.m. **Non-Animal-Based Replacements for Gelatin**
Speaker: Kevin Johndro, Laboratory Manager, Ingredient Solutions Inc.

1:45-2:25 p.m. **Development of Sugar-Free Grained Mints Using Disaccharide Sugar Alcohols**
Speaker: Philippe Levresse, Project Coordinator - Technology / Applications Development, Roquette America Inc.

2:30-3:10 p.m. **"Sugar-Free," "Reduced Sugar," and "No Sugar Added:" Expanding Beyond Confections**
Speaker: Peter Jamieson, Manager of Applications Research, SPI Polyols Inc

TRACK: APPLICATION LABS

8:30-9:55 a.m. **Formulating Foods with Life's Omega-3, the Vegetarian Source of DHA**
Speaker: Ruben Abril, Director, Ingredient Commericalization, Martek Bioscienes

10:30-11:55 a.m. **Innovations in Dressings, Sauces & Dips**
Speaker: TIC Gums

1:00-2:25 p.m. **TBD**
Speaker: National Starch Food Innovation

2:30-3:55 p.m. **Innovative Solutions to Successfully Navigating Current Food Trends, Vegetable Juices**
Speaker: Vegetable Juices

Wednesday, Sept. 19, 2007: Application Labs

A complete list of presentations as of 4/29/2007. Subject to change.

TRACK: APPLICATION LABS

8:00-9:15 a.m. **Flax - An Exciting Food Ingredient**
Speaker: Flax Canada 2015

8:00-9:15 a.m. **To be announced.**

9:30-10:45 a.m. **Masking of Sweeteners in Beverage Applications**
Speaker: Jennifer B. Mei, Senior Scientist I-Flavor Analytical, Takasago International Corp.

9:30-10:45 a.m. **DSM Yeast Extract Based Process Flavors - Tools for Building a Great Taste**
Speaker: DSM, Food Specialties USA, Inc.

11:00-12:15 p.m. **To be announced.**

11:00-12:15 p.m. **To be announced.**

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A practical educational event for formulators.

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Express Registration Form

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Photocopy blank for additional registrants.

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Payment must be received prior to the seminar.

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List first name as it should appear on your badge.

_____

PART A: SEMINAR FEES

☐ **Individual Registration** **$650.00**

☐ **Early Bird Discount** **$550.00**
(Save $100.00 prior to July 15, 2007)

☐ **Team Discount** (2 or more) **$500.00 ea.**
NEW (Each person from the same company saves $150.00-includes Early Bird Discount).

Registration includes 2 1/2 days days of sessions, including the **opportunity to attend up to 3 Application Labs on Monday-Tuesday and 3 on Wednesday,** the Proceedings, 2 breakfast buffets, 2 luncheons, networking reception, refreshment breaks and admission to the Expo.

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Bensenville, IL 60106
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CANCELLATION POLICY

Cancellations must be in writing. Refunds will not be made for cancellations received after August 1, 2007. Alternate parties may be substituted at any time without penalty.

SPECIAL REQUIREMENTS

If you are physically challenged and/or have special meal requirements, please let us know. _____ _____

PART B: APPLICATIONS LAB SESSIONS

NEW

The Applications Lab sessions provide an interactive venue to further demonstrate an ingredient's functionality or its application in a finished product. **There is no additional charge to attend the Lab sessions**, however they are limited to 40 attendees per session, on a first-come, first-served basis. Please limit your choices to 3 Lab sessions per person on Monday-Tuesday and 3 on Wednesday.

I am registering for the following: (choose a maximum of 3 on Monday-Tuesday and 3 on Wednesday)

MONDAY

☐ **8:30-9:55 a.m.**	Customizing Sensory Attributes via Hydrocolloids, CP Kelco
☐ **10:30-11:10 a.m.**	"Meat" New Trends with Innovative Phosphates, Innophos
☐ **11:15-11:55 a.m.**	Fortify Beverages "Clear Better" with Calcium Phosphate, Innophos
☐ **1:00-2:25 p.m.**	Dried Plums...Naturally Extending Food Product Shelf Life, California Dried Plum
☐ **2:30-3:55 p.m.**	Natural Colors in Beverages and Confections, GNT USA, Inc.

TUESDAY

☐ **8:30-9:55 a.m.**	Formulating Foods with Life's Omega-3, the Vegetarian Source of DHA, Martek
☐ **10:30-11:55 a.m.**	Innovations in Dressings, Sauces & Dips, TIC Gums
☐ **1:00-2:25 p.m.**	National Starch Food Innovation
☐ **2:30-3:55 p.m.**	Innovative Solutions to Successfully Navigating Current Food Trends, Vegetable Juices

WEDNESDAY

☐ **8:00-9:15 a.m.**	Flax - An Exciting Food Ingredient, Flax Canada 2015
☐ **8:00-9:15 a.m.**	To be announced.
☐ **9:30-10:45 a.m.**	Masking of Sweeteners in Beverage Applications, Takasago
☐ **9:30-10:45 a.m.**	DSM Yeast Extract Based Process Flavors - Tools for Building a Great Taste, DSM, Food Specialties USA, Inc.
☐ **11:00-12:15 p.m.**	To be announced.
☐ **11:00-12:15 p.m.**	To be announced.

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September 17-19, 2007 • Itasca, IL.

Assisting R&D

R&D staffs face challenges beyond ingredient functionality. Topics such as R&D tax credits, processing parameters for slow churned ice cream, labeling software and food safety proved popular.



Improving Cash Flow with Tax Credits

Cash flow can be improved by claiming R&D tax credits. Tax laws in existence since the early 1980s are written by the U.S. Treasury Department and enforced by the Internal Revenue Service (IRS). As is the case with much of our tax law, the law that was written by the Treasury within the area of R&D tax credits, as it relates to the types of activities and resulting costs that qualify for the credit, are subject to interpretation.

Certain political directives have historically been more or less "taxpayer friendly," which are based upon a particular administration's agenda. When the IRS originally interpreted the law written by the Treasury, it was very restrictive as to what they allowed companies to claim for R&D credits. Once a precedent has been established, it usually requires the Treasury to write interpretative guidance, which explains what they originally intended. This happened in the case of R&D tax credits and, therefore, allowed the opportunity for companies to be confident in claiming the credit they are entitled to claim.

In 2001, regulatory intent was to get the IRS back on track, clarify the original intent of the law and dispel fears created by the IRS. The final regulations were a taxpayer victory with activity definition and documentation standards.

Under the old law, "Discovery of New Information," discovery is synonymous with science or scientific matter (chemical, biological or physical). With the current law, "Appropriateness of Design," design does not have to be synonymous with science or scientific matter. Application of known principles are used to solve problems which may simply involve choosing the most attractive product form, meeting ergonomic standards or complying with heat, noise or other environmental specifications. The word "new" refers to the taxpayer. Existence in the public domain is not relevant.

Regarding credit basics, the government subsidy is for routine, day-to-day, continuous innovation. The state R&D tax credit is available in many jurisdictions, and a company can look back three years. Federal refunds are not subject to taxes. There is also interest attached to refunds. The credit is a direct "dollar-for-dollar" reduction of the income tax liability owed as a result of the company reporting taxable income. The credit—which is a government subsidy in addition to the company deducting (reporting as an expense) the same costs (payroll, supplies, etc.) that the credit is based upon—is claimed on the business tax return for a C Corporation and the individual owners' tax returns for a flow-through entity (S Corporation, LLC or Partnership). The credit components are qualifying activities, qualifying costs and whether the qualifying costs exceed a base period threshold.

Qualifying activities require thought and physical effort. An example would be a new or improved business component such as a product or formula, production process or computer software.

www.PreparedFoods.com/rd

Project Result Examples

Industry	Sales Volume (Millions)	Credit $
Food processor (protein)	50	480,000
Metal stamping	70	780,000
Food processor (mixes)	60	320,000
Lighting distributor	60	360,000
Aerospace components	45	820,000
Packaging/Corrugated containers	40	240,000
Point of purchase/Store display	75	506,000
Chemical	20	275,000
Automotive—muffler systems	76	800,000
Transportation—general/Alternators	80	2,200,000

Source: RSM McGladrey Inc.

Shown here are examples of qualifying costs and credits received for each sales volume in millions of dollars.

Using principles of science connected to engineering, physical, biological or computer science qualify. However, social sciences, works of literary art, advertising or management consulting do not. Patent history is presumptive proof of qualifying activities. The degree and length of time or effort are not relevant. The success of the effort, activity or project is not a requirement.

Qualifying costs include W-2 earnings, supplies and materials (both direct and indirect) and contract research (65% of fees to outside consultants).

Technological expertise including chemical engineering, industrial engineering, biological sciences and food technology qualify for the tax credit. Operational steps from concept through validation development with R&D and customers, tests and evaluating results, package design, manufacturing/packaging processes and trial production runs are all qualifying activities and costs.

"Improving Cash Flow by Claiming R&D Tax Credits," Terry Schwartz, RSM McGladrey Inc., Terry.Schwartz@rsmi.com —Summary by Elizabeth Mannie, Contributing Editor

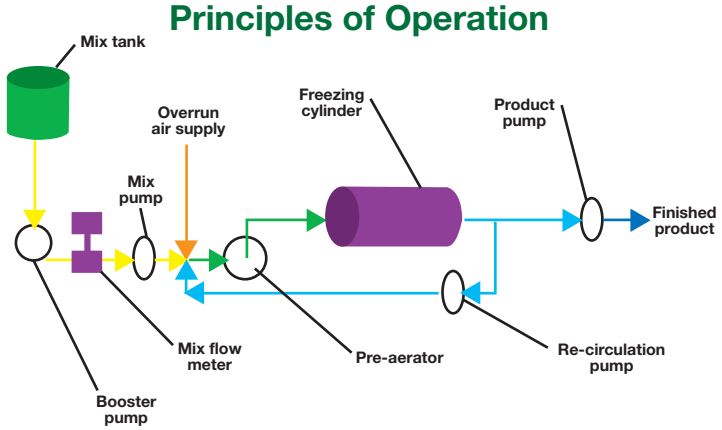
Churn Technology in Frozen Desserts

Who says you cannot teach an old dog new tricks? The dairy industry is still coming up with new technologies to enhance product quality. Among these are new churn technologies that have the potential to yield products with improved flavors and textural characteristics. One of these technologies is the Continuous Product Recirculation with Emulsification of overrun Air and Mix (CREAM) freezer concept. The attributes of this process are still being discovered.

Churning has been used to manufacture butter for ages. Old-fashioned churns were manufactured from wood and were hand-powered. The farmer or his wife would agitate the cream to produce butter. Controlled partial churning is needed for ice cream manufacture. (The operation of the CREAM freezer may be seen in the chart titled: "Principles of Operation.") With this technology, operators may be able to produce products such as sorbet and dairy-based frozen desserts that have greater stability and enhanced mouthfeel. Ingredients are blended in a tank. The blended ingredients are pumped to a cylindrical freezer, where they are mixed. Prior to freezing, overrun from the freezing cylinder

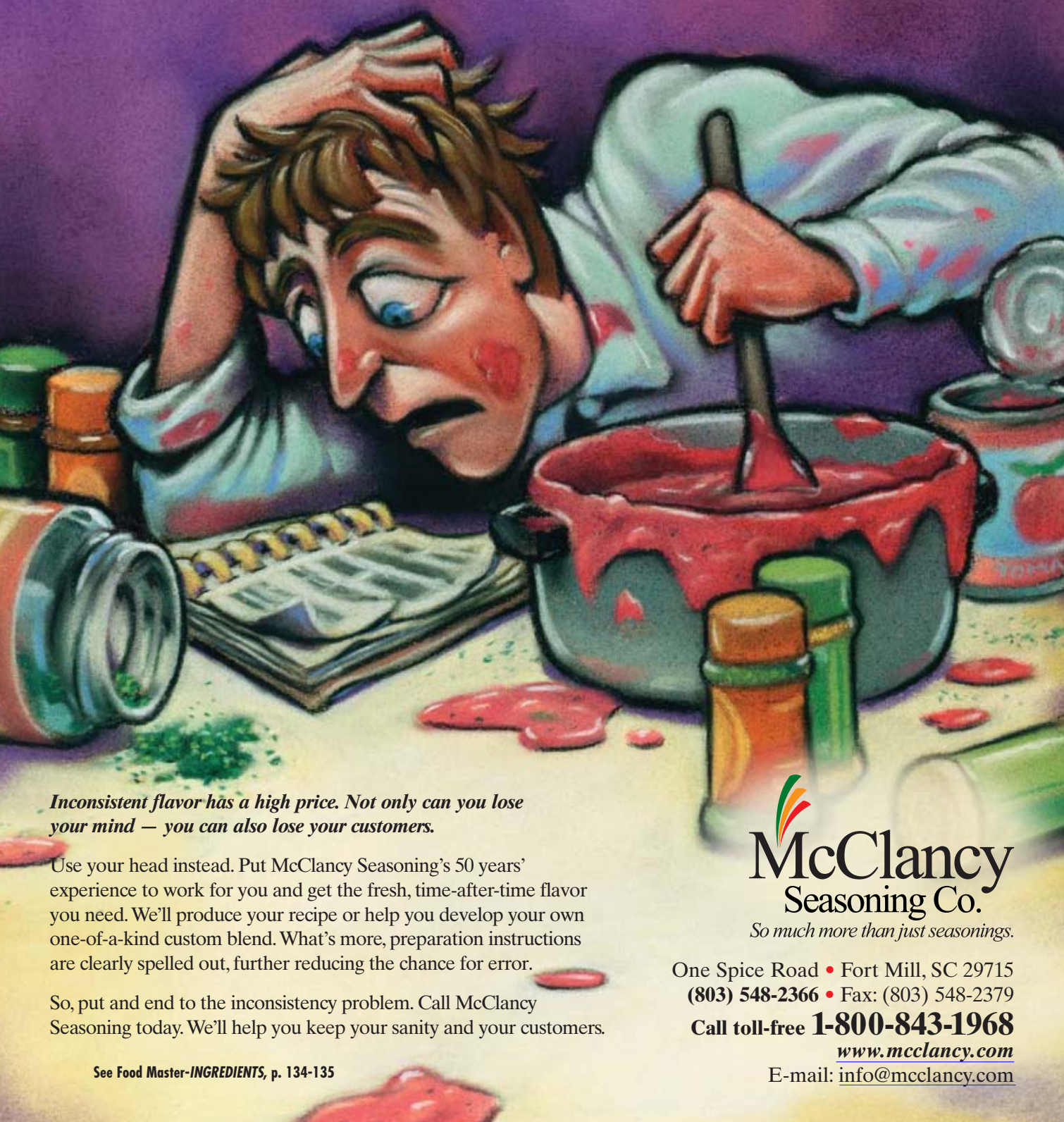
The operation of the patented CREAM freezer allows operators to produce products such as sorbet and dairy-based frozen desserts that have greater stability and enhanced mouthfeel.

Principles of Operation



Source: WCB Ice Cream

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See Food Master-*INGREDIENTS*, p. 134-135

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Nutritional Information

Automatic generation of nutrition labels and ingredient statements:

- Handles new regulations, including trans fat and allergen declaration.
- Helps insulate the company from failure-to-warn legal suits.
- Allows for custom ingredient and intermediate descriptions.

Source: Advanced Software Designs



Once the product is finalized, the software has the ability to generate a "Nutrition Facts" statement that includes information on new regulatory requirements for trans-fatty acids and food allergens.

and overriding air are added to the mix. The partial recirculation of frozen product allows for lower draw temperatures and smaller ice crystals as well as smaller, more evenly distributed air cells in the end products. Hence, the finished product texture, consistency and meltdown can be improved with proper selection of ingredients (i.e., stabilizer, emulsifier and protein).The system allows the processor to manipulate pre-aerator speed, dasher speed and the percent of recirculation to allow customization of the operating parameters to each formula's needs.

Sensory and meltdown data from products manufactured using the CREAM system show documented, relevant differences. Finished products can show excellent sensory and performance properties. The company is still evaluating the "whys" of the process. For example, air cell and ice crystal data do not explain all differences in performance (i.e., meltdown, texture scores). Results to date indicate that it is obvious that formulation plays a role in system performance, so each formula will need to be evaluated individually. Among the parameters that are being studied in the future are emulsion destabilization, fat cell size and crystalline states.

"New Churn Technology in Frozen Desserts: Identifying Real Opportunities," Main Street Ingredients, Phil Rakes, technical specialist, phil.r@msing.com
—Summary by Richard F. Stier, Contributing Editor

Increase Productivity with New Product Development Software

Computers have made work much easier in many industries. The food industry is no different. Now available for product development scientists is a Windows-based program that provides developers with electronic help in formula management and nutrition facts panel development, as well as regulatory alerts, guidelines and restrictions. In addition, it aids with regulatory compliance, including ingredient declarations, and even Material Safety Data Sheets (MSDS) and workflow/project management. The ultimate goal is to streamline the development process, so companies can get their products to market more quickly and at lower costs. The key to the program, called New Product Development (NPD) Software, is that it allows different departments to access a common database to share ideas and work more efficiently.

The Resource (Ingredient) Query feature allows users to quickly locate components that meet defined criteria or those which may be used as substitutes. These different materials may then be compared to evaluate potential differences in functionality and performance. The program also allows developers to evaluate potential substitutions. One feature that will make managers happy is that it provides cost comparisons of different formulations. This can save time and money if a promising formulation "costs out" to be too high.

The program also has the ability to capture Certificates of Analysis, which are an essential component of product quality and safety programs. Once the database has been developed and all pertinent data inputted, the system may be queried to search for existing formulations that meet new or existing customers' demands. The software has also been designed to provide an automatic alert if a formulation does not meet established criteria, such as a mandatory regulatory requirement. The program will also flag regulatory compliance issues that need to be addressed. Once the product has been finalized, the software has the ability to generate a "Nutrition Facts" statement that includes the new regulatory requirements for trans fatty acids and food allergens.

One other feature that helps enhance interdepartmental cooperation is the Development/Workflow

Approval feature. This allows management to spread the workload and monitor how a project is progressing. It also helps ensure that the development process proceeds smoothly and in a stepwise progression; that is, developers do not "jump the gun" by moving forward before the appropriate approvals have been granted.

The use of NPD Software has the potential for streamlining the product development process and reducing costs. According to the software developer, the program can help food processors manage the development process electronically. The software can help plan the process, monitor progress (milestones), compare ingredients and formulations, alert developers to potential regulatory concerns and develop nutritional labels that are in compliance with the latest regulations (see chart "Nutritional Information"). The company believes its product can reduce the time from product conception to when it enters the market. This software also can enhance how a company responds to new or existing customer inquiries and enhance employee satisfaction; these efficiencies will help to reduce costs and economize operations.

"Using New Product Development Software to Accelerate New Product Development,"
Ted Pliakos, vice president—sales, Advanced Software Designs, tpliakos@asdsoftware.com
—Summary by Richard F. Stier, Contributing Editor

Food Quality and Safety Challenges

Food safety should be an integral part of the product development process. Developers should adopt a program of risk assessment, a process for determining the risk associated with biological, chemical or physical hazards, including allergens in foods. Microbiological risk assessment focuses on the likelihood of harm resulting from human exposure to a foodborne pathogen. Microbiological risk assessment helped the industry develop effective Hazard Analysis and Critical Control Points (HACCP) plans.



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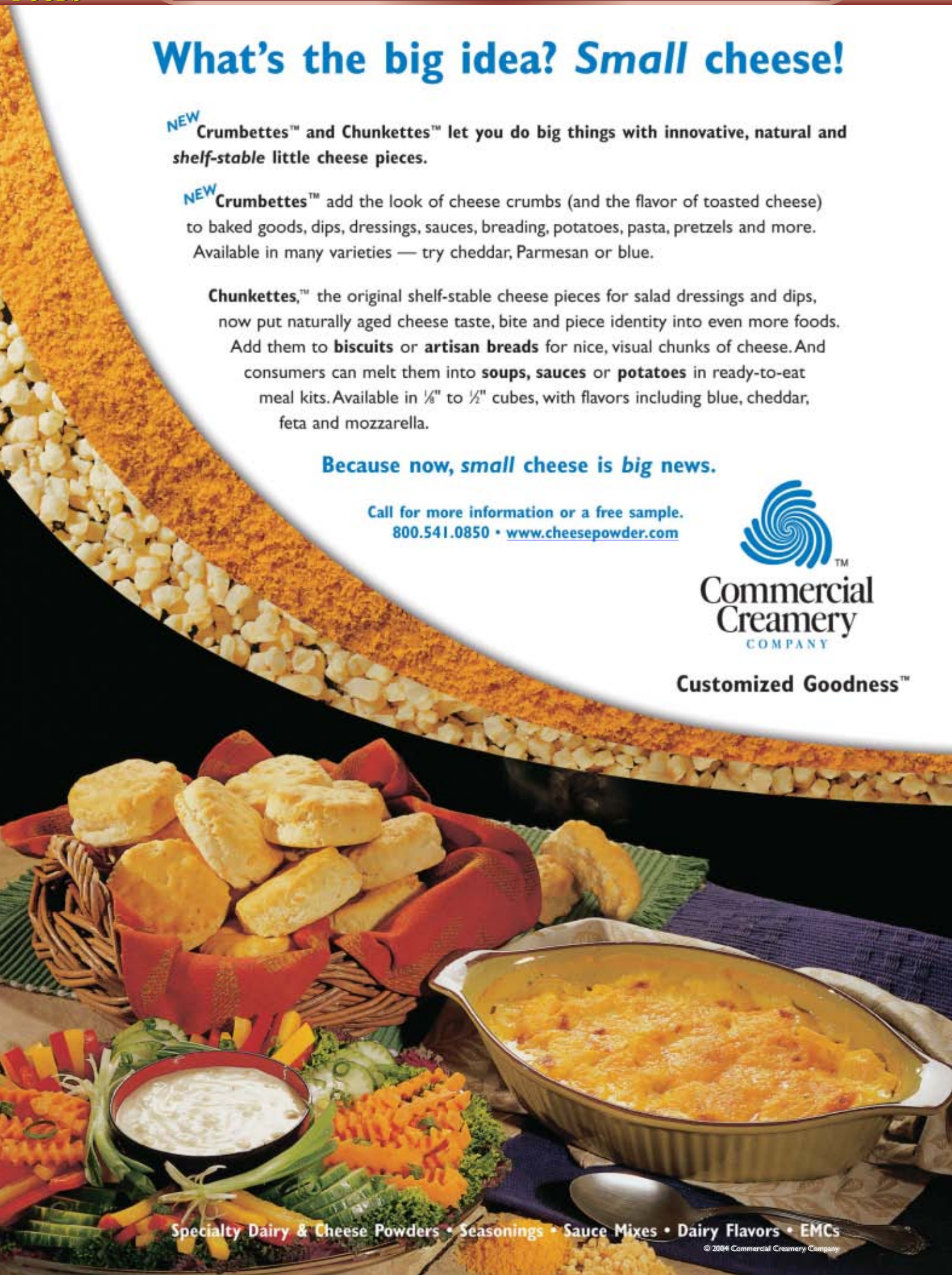
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Measuring Microbes

Type	Parameter
Intrinsic	pH
	Water activity (a^w)
	Oxidation reduction potential (Eh)
	Nutrient content
	Antimicrobial constituents
	Biological structure
	Competing microflora
Extrinsic	Temperature of storage
	Relative humidity
	Presence of and concentration of gases in the environment

Source: Silliker Inc.

Food also can be contaminated with spoilage organisms and foodborne pathogens during processing, handling and storage. The developer and/or his food safety support team should understand the basic principles of microbial growth; what organisms may be present in the foods; the growth characteristics of these organisms; how to inhibit or destroy potential pathogens or those that cause economic spoilage; and how distribution and storage may affect the microbial growth in the product. The generally accepted microbiological risk assessment framework provides estimates on the probability of disease occurrence based on hazard identification, exposure assessment, dose-response assessment and risk characterization.

Both intrinsic and extrinsic parameters have an effect on microbial growth.

Food additives and ingredients added to foods during processing play an important role in the food product from an economical, nutritional or safety point of view. Inconsistent use of food additives and use of



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contaminated ingredients may result in unfavorable effects on the quality and safety of the food product.

Microorganisms have defined growth parameters. In stress conditions, they may be able to survive or grow slowly beyond these. As an example, Salmonella does not thrive in dry environments, but it has survived often enough to cause a number of outbreaks. Intrinsic parameters are an inherent part of plant and animal tissues, and extrinsic parameters are factors that can be controlled or changed. Both affect the growth of microorganisms. (See chart "Measuring Microbes.") Part of the risk assessment process is to understand how these factors affect the organisms that will affect food products and use those parameters to kill, reduce or inhibit the target organisms. One of the tools employed by product developers for food stability, safety and quality is called "hurdle technology." Hurdle technology uses a combination of parameters such as controlling temperature, pH and water activity, and the use of preservatives to create multiple obstacles to potential pathogens or spoilage organisms.

The final step in the process is to gather data to determine whether a specific formulation is microbiologically stable. Microbiological challenge testing is a useful tool for determining the stability of a food product formulation against spoilage organisms or foodborne pathogens. In these studies, in order to determine how changes in formulation or processing parameters affect the microbiological stability, spoilage organisms or foodborne pathogens are inoculated into or onto the product. These studies must be carefully designed, and clear objectives must be established at the start of study.

The end result of a well-designed validation study provides critical information on the microbiological stability and safety of a product. If a formulation or process changes, the validation study may have to be repeated.

"Food Quality and Safety Challenges for Product Development," Erdogan Ceylan, director of research, Silliker Inc., erdogan.ceylan@silliker.com, www.silliker.com
—Summary by Richard F. Stier, Contributing Editor



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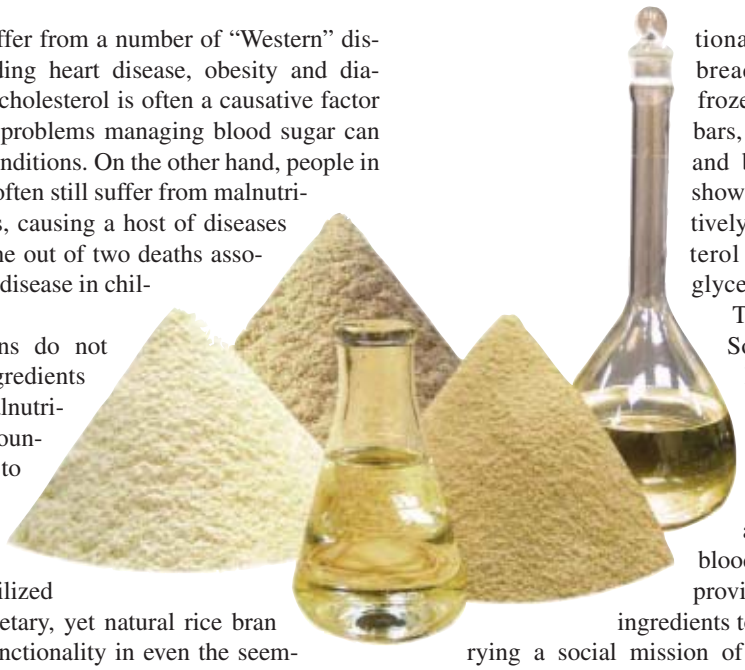
See Food Master-*INGREDIENTS*, p. 185

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Rice Bran to the Rescue

Kerry Hughes, R&D Applications Editor

Americans suffer from a number of "Western" diseases including heart disease, obesity and diabetes. High cholesterol is often a causative factor of heart disease, and problems managing blood sugar can cause the latter two conditions. On the other hand, people in developing countries often still suffer from malnutrition of basic nutrients, causing a host of diseases and contributing to one out of two deaths associated with infectious disease in children under five.



Although Americans do not usually think of ingredients used to mitigate malnutrition in developing countries as being helpful to their own nutrition, there is a new product with this potential. NutraCea®'s Stabilized Rice Bran is a proprietary, yet natural rice bran that ensures health functionality in even the seemingly most mundane foods, such as pastas.

NutraCea employs a stabilization process that protects the natural vitamins, minerals, phytosterols and antioxidants in rice bran that can be destroyed in a matter of minutes during normal processing. By stabilizing rice bran, the healthful content of a staple food can make it past the grocery shelves and into people's bodies.

This stabilization process is focused at the enzyme lipase that naturally digests fats and exists in the bran layer. When it comes in contact with the bran's oil, it begins to rapidly degrade the bran. NutraCea uses an all-natural, non-chemical process (protected by a trade secret) to protect this degradation from happening, resulting in a product that not only retains its healthy nutrients, but also is guaranteed to retain a one-year shelflife. The types of ingredients that can be found in rice bran include beta-carotene, lycopene, B vitamins, vitamin E, phytosterols and others.

NutraCea Stabilized Rice Bran comes in Regular, Fine and Extra Fine for suitability in a wider range of food applications. It is great in whole-grain baked goods, providing a good source of insoluble fiber. It also can add a bit more freeze/thaw stability and is good in applications such as weight management systems, nutritional beverages, whole-grain breads, low-glycemic foods, frozen baked goods, nutritional bars, RTE cereals, sweet breads and bakery mixes. It has been shown to clinically and effectively promote healthy cholesterol levels and has a low-glycemic response.

The company also offers Solubles, which is the solubilized portion of the Stabilized Rice Bran. It has been stabilized, retains its natural nutritional content and has been found to help aid healthy cholesterol and blood sugar. NutraCea is able to provide cost-effective functional ingredients to the U.S. market while carrying a social mission of mitigating malnutrition in developing countries, especially among women and children. For more information about this program, please see the RiceAde™ Feeding Program on the NutraCea website at: www.nutracea.com/b_riceade.php.

> Stabilized rice bran delivers a wide variety of health-promoting nutrients that other rice brands may not.

For more information:
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Kurt Kreuter • 920-869-3290 • kkreuter@nutracea.com
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Rice Bran Brings Benefits

Nutrient	Principle Health Benefits
B-Carotene	Visual acuity, fetal growth
Lycopene	Digestive tract protection
Gamma-oryzanol	Elevated cholesterol, gastrointestinal disorders, body building
B vitamins	Metabolic enhancement and efficiency
Choline	Liver function, memory
Inositol	Liver function, depression
Vitamin E	Antioxidant, cardiovascular protection
Folic acid	Neural tube defects, cardiovascular
Phytosterol	Reduce cholesterol absorption
Arabinogalactin	Enhance immune system
Phytates	Increase oxygen transport capacity

Source: NutraCea

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Tasty and Good for You

Kerry Hughes, R&D Applications Editor



A new report entitled "Ingredients Affecting Health and Wellness: Innovations and Trends to Watch in 2007" from Packaged Facts confirms, "The buzz is on as omega-3 fatty acids, exotic pseudo-grains, antioxidants and other high-profile wellness ingredients continue to flood grocery shelves. Functional foods infused with the most advanced innovations in supplemental nutrients or the latest in flavor technologies are gaining momentum and meeting the health and wellness demands of consumers."

Enter Wild Flavors to the scene with their taste modification technologies. According to Marion Dalacker, director of market strategies for WILD Flavors Inc., "Trends such as natural labeling, reduced salt, sugar and/or fat and more functional products are driving the need for such solutions. Our products address various aspects of these trends through their unique designs." Specifically, she is referring to Resolver®, an ingredient designed to mask off-flavors associated with ingredients such as vitamins, soy, artificial sweeteners and glycerin; SaltTrim™, an ingredient that, when used in conjunction with potassium chloride, will block the bitter or metallic notes connected with potassium chloride while adding salt-like flavor and mouthfeel; SavorCrave™, which is designed to deliver the taste enhancement and mouth-watering characteristics of umami in savory foods, while also having natural flavoring labeling and clean taste benefits; and LightShield®, designed to improve taste over a longer shelflife for use in dairy products whose taste is affected by exposure to light.

Wild's unique SaltTrim proprietary technology is able to simultaneously block the negative tastes of potassium chloride and to complete the eating experience by adding back much of the taste and texture characteristic of salt. Wild's SavorCrave works by bringing back the fifth basic taste sensation, umami, which is known to intensify flavors. Wild's LightShield technology is a blend of ingredients that minimizes light-activated reactions, thereby reducing the development of light-activated flavors (LAF) in milk-based products. Generally, LAFs are due to product exposure to ultraviolet and fluorescent lights in grocery display cases. With the use of LightShield, there is a greater variety of packaging options available. Wild's Resolver is particularly useful in the nutraceutical business, because it is focused on applications involving vitamins, soy, bitterness and acidity. The Resolver technology works by blocking the taste receptor's ability to taste bitterness and astringency, resulting in fewer off-flavors that often accompany nutraceuticals.

Market drivers such as consumer demand for foods low in fat, sugar and salt have food developers seeking the latest aids in flavoring technology.

As the Packaged Facts report predicts, "In 2007, a big change will be consumers' heightened interest in ethical consumerism—sustainable, organic, local and natural foods. Labeling issues will be key in 2007, from organic seafood to fair trade." Wild seems to be riding on top of this trend by bringing flavor technology that caters to today's palates, while also assuring clean labels. pf

For more information:
Wild Flavors Inc. • Erlanger, Ken.
Marion Dalacker • 888-WILD Flavors
marketing@wildflavors.com • www.wildflavors.com

Amazing Maize

Barbara T. Nessinger, Associate Editor



A leading supplier of nature-based functional and nutritional ingredient solutions for the global food and beverage industries has a strong focus on innovation in wholesome, natural and nutritious products. This continues with the introduction of a new whole-grain corn flour loaded with nutritional benefits.

Hi-maize® Whole Grain Corn Flour is a new natural, functional whole-grain flour that delivers the highest dietary fiber content of any whole grain on the market. It provides high antioxidant, vitamin A and folic acid levels and is made from specialty hybrid high-amylose corn.

The fiber content of 33% per 100g is nearly three times that delivered by whole-grain wheat flour or whole-grain oats, and Hi-maize contains antioxidant levels comparable to that of blueberries. It also has triple the vitamin A and one and a half times the folic acid of traditional whole-grain sources, while containing fewer calories.

Functionally, the flour provides the same benefits as traditional whole-grain corn flour for baked goods, cereals and snacks. It adds crunch and long bowl-life to cereals and enhances the texture of hard rolls and artesan breads. Its high fiber and good eating qualities are excellent for whole-grain cookies and provide light texture to whole-grain cakes.

According to David Huang, senior marketing development manager for National's Nutritional Flours, "Hi-maize Whole Grain makes it easier to formulate high fiber and whole grains into most low-moisture foods. We have a unique dry milling process that extends the shelflife of the product to nearly twice that found in a typical whole grain."

Food manufacturers can incorporate a range of label claims when using this product, including: 100% whole-grain, good or excellent source of fiber, high levels of antioxidants and vitamin A and folic acid, and lower calorie statements.

In addition to the benefits of all whole grains, Hi-maize is an important source of phenolic compounds—corn has the highest phenolic acid content of common whole grains. Hi-maize Whole Grain Flour is part of National Starch's growing product line of Hi-maize products. Hi-maize Corn Flour 150 and Hi-maize Corn Meal 150 were introduced last year. Pf

For more information:
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N-hanced Poultry Products

Now there is a functional native starch that delivers moisture retention and excellent mouthfeel to poultry products naturally. N-Hance™59 eliminates the need for modified starches, sodium phosphate and carrageenan additives. This product from National Starch offers poultry producers who serve the growing wholesome/natural foods market a new option for preparing tumbled, injected, marinated, coated, par-cooked, frozen and other packaged poultry products with clean labels. This product is good news for poultry producers who seek a high-quality product that is free of sodium phosphates and modified starches.

N-Hance59 lends flavor, good cuttability and improved yields to a wide range of poultry items. Moreover, it is an all-natural, potato-based starch that has many multi-functional roles. It is both a highly functional moisture retainer and clean label alternative to sodium phosphate and modified starches. Additionally, tests have shown that N-Hance does well in retaining meat juiciness, increasing yield weight and improving visual and textural appeal.

Moreover, the product retains moisture in vacuum packaged meats, which means higher yields. Because it is potato-based, it is inherently bland and allows the flavor of meats and marinades to come through with good mouthfeel. The starch has low gelatinization temperatures and is relatively stable at low cooking temperatures, as well. Plus, it has neutral pH and low shear and stress conditions.

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PREPARED FOODS

r&d applications

Cost Savings in Extracts

Kerry Hughes, R&D Applications Editor



Garlic and onion are available in a number of different kinds of extracts for use in applications to replace dehydrates.

There is a shortage in the market for dehydrated onion and garlic that has produced a significant rise in pricing for both. There are also concerns regarding availability, especially in onion, for low and extra low bacteria count material. Price increases for these categories are projected to rise over the next two to five years, at minimum.

According to Gary Hainrihar, vice president of sales and marketing for Kalsec®, the shortage in garlic and onion is being driven by an increased demand for fresh garlic in China and fewer acres being planted worldwide. Alleviating the shortage in garlic is a long-term project, because cloves must be carried over from one crop to the next to support expanded plantings.

A lower-cost alternative exists, says Hainrihar. Garlic and onion extracts from Kalsec can replace dehydrated garlic and onion powders and granules without effecting flavor profile. To help companies reformulate, Kalsec offers the services of a team comprised of product development and sensory specialists.

The demand for garlic has grown considerably in the U.S., especially in the past decade.

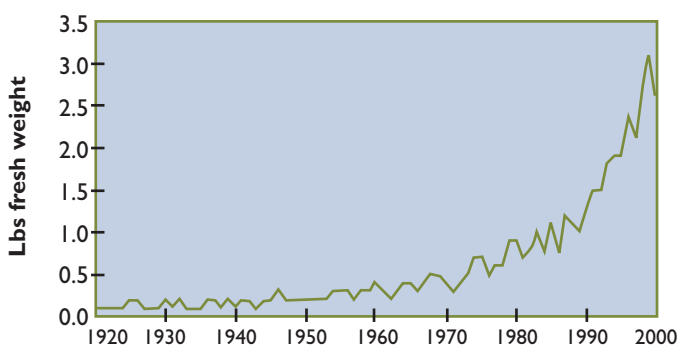
Kalsec onion and garlic extracts can be labeled "Natural Flavor" and are 100% natural. They do not need re-hydration to express their full flavor and are more consistent in flavor profile and strength than dehydrated products. Plus, they have a naturally low total plate count. Aquaresins® of garlic and onion are compatible with a variety of food formulations and are water dispersible without the use of polysorbates.

As world-wide garlic and onion consumption continues to grow, the demand for more economical sources and new technologies is increasing. Kalsec's onion and garlic extracts are one way to utilize these high demand flavors while supplying food manufacturers with an economic alternative to dehydrated products.

Since garlic consumption has been increasing in the U.S., and it is considered one of the "World's Healthiest Foods" by the George Mateljan Foundation, its use in flavors is here to stay. Garlic extracts may be one option in retaining flavor and functionality while also retaining your pocketbook. pf

For more information:
Kalsec Inc • Kalamazoo, Mich.
Joni Ford • 800-323-9320
jford@kalsec.com • www.kalsec.com

U.S. Per Capita Garlic Consumption Accelerates in 1990s



Source: www.ers.usda.gov/publications/AgOutlook/Jun2000/ao272e.pdf



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— Myron Cooper,
Vice President,
Technical Services
The Hain-Celestial Group

"The event exceeded my expectations. We found it very beneficial to meet with existing suppliers along with those we did not know. We were shown resources and product lines that we were unaware of prior to the meetings. Great use of my time."

— Michael Maney,
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Presenters



Gary List
Chemical Technology Expert and Lead scientist at the United States Department of Agriculture's National Center for Agricultural Utilization Research



Richard Galloway
Oils Expert, President of Galloway and Associates, LLC



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PREPARED FOODS



Bring on the Bacon

Food developers will now be able to utilize a new bacon topping made from soy. Cargill Texturizing Solutions introduces Identity Preserved (IP) Prosante™ Plus imitation bacon bits made from Prosante texturized soy flour. The bits are rich in the soy protein recognized in health claims authorized by the U.K. Joint Health Claims Initiative, the FDA and the American Heart Association. Consumers know soy helps lower blood cholesterol and reduces the risk of heart disease. The bacon bits contain no cholesterol or trans fat, and food developers can incorporate them as a high-quality protein source at an economical price. Plus, they are similar in appearance, taste and texture to fried, crumbled bacon. Cargill Texturizing Solutions, Lori Fligge, 952-742-2275, lorifligge@cargill.com, www.cargilltexturizing.com

Colorants Go Natural

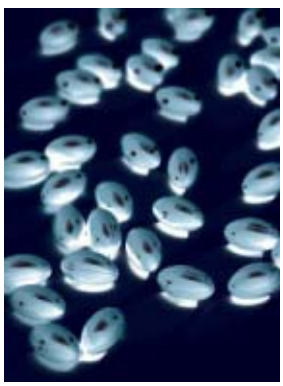
The Natural Organic Standards Board (NOSB) has recently placed a line of natural colorants onto the National List of ingredients approved for use in foods labeled "organic" or "made with organic ingredients." Fourteen petitions filed by colorMaker and D. D. Williamson were successfully approved in April, as well as other petitions filed by both buyers (organic food processors) and sellers (ingredient suppliers) of natural colorants, helping to clarify the rules for use of natural colorants in organic food products. If a natural colorant exists, it must be used; if not, a non-certified natural colorant may be used, as long as it is on the National List. The U.S. Secretary of Agriculture will accept or reject the recommendations of the NOSB this June. colorMaker, Stephen Lauro, 714-572-0444, stephen@colormaker.com, www.colormaker.com

Outdoor Organics

Outdoor grilling goes organic with the announcement of an authentic-tasting char-broiled grill flavor that delivers the savory and smoky notes associated with cooking over charcoal without specialized processing. Kraft Food's Organic Grill Flavor® will be introduced at the 2007 IFT annual meeting in Chicago this July. The new flavor will be showcased to KFIC's customers in an Organic Grill Corn Bisque application. Formulated and produced to adhere to the USDA Organic standards and certified by Quality Certification Services (QCS), Organic Grill Flavor is natural, does not contain hydrogenated oil and is not made with genetically-modified ingredients. Kraft Food Ingredients Corp., Todd Hrubes, 901-381-6533, www.kraftfoodingredients.com

Green Global Identity

A leading manufacturer of natural savory flavors and soy sauce powders invites attendees of the 2007 IFT Food Expo this July to visit their newly re-designed booth. Nikken Foods USA Inc. will demonstrate typical sauce applications for Wheat-Free Non-GMO Natural Flavor Enhancer and Wheat Free Soy Sauce as well as natural flavors featured in dry and hydrated form. Additionally, they will highlight new cost effective soy sauce produced in China and featuring excellent flavor, color and aroma profiles. Nikken Foods USA Inc., 636-532-1019, info@nikkenfoods.com, www.nikkenfoods.com



Cognis in China

A world-wide supplier of innovative specialty chemicals has released information about four new premium ingredient brands for added value. Cognis Nutrition introduces Vegepure®, a range of plant sterols and sterol esters, Xangold® natural lutein ester 20% ingredient, Omevital™ omega-3 fatty acids and Tonalin® CLA, which claims to play a significant role in preventing weight gain. All four products were introduced at the Food Ingredients China trade show. Cognis Nutrition, +49 2173 4995 116, nutrition-and-health-europe@cognis.com, www.cognis.com

Go for the Guinness

The latest round-up of new food launches highlight some interesting flavor introductions. Productscan's database shows one company exploiting the popularity of Guinness with a new spread flavored with the popular Irish tipple. Unilever has come up with a novel development for its U.K. savory spread, Marmite, with the introduction of a limited edition Guinness-flavored variety. The non-alcoholic spread is made with a strain of yeast that is used to make the famous Irish brew and is described as less salty and less meaty flavored than the original. The appearance of the new Guinness variety spread around St. Patrick's Day could spur more consumers to try the product. Productscan Online, Anne Bourgeois, 212-652-5308, abourgeois@datamonitor.com, www.productscan.com

Overwhelmingly Organic

Organic products are uniquely defined by their naturally developed ingredients and are produced without any harsh synthetic chemicals or genetic modifications. That is why GSB Flavor Creators are pleased to introduce a new line of organic certified flavors. Each of the flavors has been care-

fully tested and approved for usage in both alcoholic and non-alcoholic beverages, coffees, teas and nutraceuticals. The organic flavors can even serve as natural fruit juice enhancers. With some flavors touted as 95% Organic Natural (including mango, peach, banana and pineapple) and others 100% Organic Natural (bergamot, Mandarin orange, peppermint and Triple Sec—to name a few), there seems to be something for every taste bud available. Corinne B. Thompson, 770-424-1886, cthompson@gsbflavorcreators.com, www.gsbflavorcreators.com



Healthy Energy Tastes Good

The great promise of wellness combined with good taste may be ready for delivery with a functional carbohydrate from one of the world's largest sugar producers. Palatinit's Palatinose™ functional carbohydrate has the unique ability to provide long-lasting energy in the form of glucose, a naturally sweet taste and a low glycemic response; plus, it is tooth-friendly. It is now a vital ingredient in a vast array of great-tasting foods and beverages stocked on store shelves around the world. Introduced in the U.S. in 2005, many products already use Palatinose, from multi-flavored sports drinks to meal replacers and baking mixes, and more products are on the way. Also of note is the ingredient's ability to boost metabolic fat oxidation, which promotes the mobilization and use of fatty acids as an energy source. These findings make Palatinose an excellent aid for weight management and weight control applications. Palatinit, Christian Fernandez, 973-912-4400, www.palatinit.com

Superfruit Flavor Frenzy

Trendy new flavors usually include one or more so-called "superfruits." This year's workshop developed by Bell Flavor's Beverage R&D Team was no exception, with superfruits going strong and some new flavors taking the spotlight, as well. Additionally, a few classic fruits and botanicals emerged with newly discovered health benefits. Samples of 60 new flavors from Bell's U.S., Canada and Mexico facilities were presented in teas, still drinks, flavored and carbonated waters and drinks, sports/energy drinks, alcopops and alcohol cream bases. With manufacturing plants in five countries and over 40 sales offices around the world, Bell has the ability to create the flavor, fragrance or botanical for any application. Bell Flavors & Fragrances, Susan Armitage, 847-291-8431, sarmitage@bellff.com, www.bellff.com

Chocoholics Rejoice!

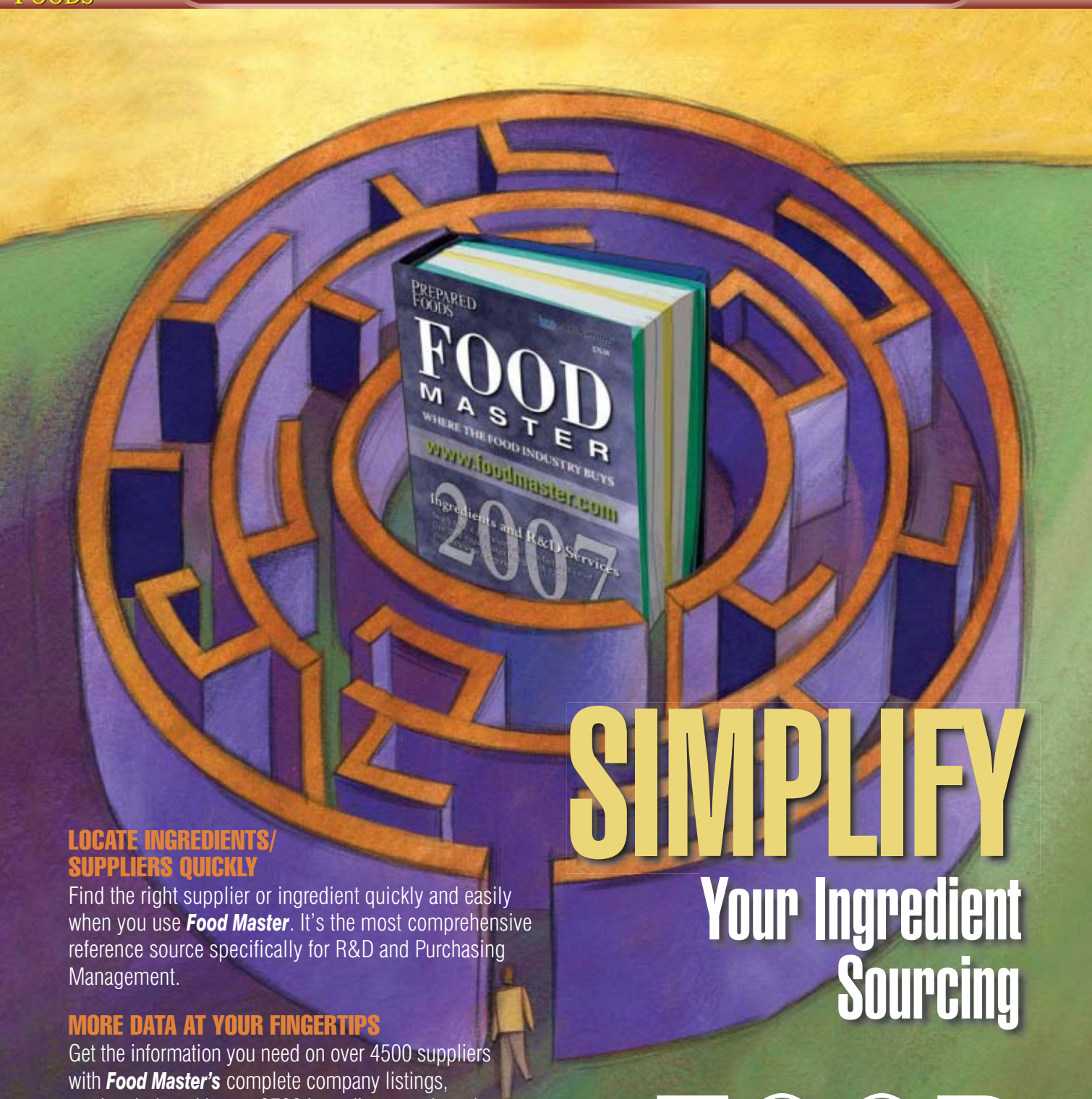
A new ingredient could have chocolate lovers who want a healthier alternative dancing in the streets. GELITA® will soon introduce its latest ingredient—GELITA Instant Gel Schoko®, used in the conventional process of light chocolate manufacturing. It has the ability to increase the healthy benefits of compound chocolates and chocolate coatings by reducing fat, and it does so without affecting the sensory and physical characteristics of the chocolate. GELITA's exhibit at July's upcoming IFT show in Chicago will highlight the ingredient, which tastes like standard chocolates in taste tests comparing it to regular chocolate. It is a natural, safe product with GRAS status and is not susceptible to seasonal conditions. No additional steps in the process are necessary when using this in chocolate compound or chocolate coating formulations. GELITA North America, Lara Niemann, 712-943-1692, lara.niemann@gelita.com, www.GELITA.com

Too Much of a Good Thing



New research suggests that vitamin D and calcium from dairy products may be a cause of brain damage and dementia in older adults. Too much calcium can narrow blood vessels in the brain, leading to neural damage. Vitamin D may compound the effect, which regulates calcium retention and activity. Researchers do not know if high calcium and vitamin D intake actually cause brain lesions, but the study supports concerns about the effects of too much calcium among older adults, given the current emphasis on promoting high intakes of calcium and vitamin D.

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America's Favorites Go Dry

America's famous and most preferred sauces are now available as dry flavors. French's Flavor Ingredients introduces barbeque, hot sauce, mustards and Worcestershire sauces to their already extensive line of flavorings. They can be used in any application where enhanced taste is needed without adding moisture and are great for use in cook-in-bag applications. French's will be showcasing these ingredients at the upcoming IFT show in Chicago. Dick Corbet, 636-536-1563, Dick.Corbet@FoodMarketingStrategies.com, frenchsflavoringingredients.com

For the Love of Pets

The recent recalls of dog and cat foods across the U.S. have called for increased vigilance by pet food manufacturers and processors of pet foods. In order to minimize the likelihood of future supply problems, the FDA wants to raise awareness about the importance of manufacturers knowing their suppliers. American Dehydrated Foods Inc. (ADF™) also believes it is important for pet food manufacturers to ensure the safety of their food ingredients. For nearly 30 years, ADF has provided top quality, label-friendly pet food ingredients to pet food processors. All of ADF's processing and spray drying plants use HAACP audits, are E.U.-certified and are inspected by the American Institute of Baking, receiving the certification of "superior." ADF's pet food protein ingredients include such claims as all or 100% natural, major source of amino acids and optimally digestible protein, to name a few. American Dehydrated Foods Inc., Gregg Griffin, 800-456-3447, ggriffin@adfinc.com, www.adf.com



Texture Made Easy

A global specialty products company now offers a functional texture system developed for ultimate performance in key application areas. International Specialty Products' (ISP) new Textureze™ systems for applications with a healthy focus is great for dressings and sauces, imitation or processed cheeses, bakery and meats. The benefits of Textureze PC systems for bakery applications include improved bake stability, improved taste and appearance, shelflife extension through reduced moisture loss and flexibility in hot or cold processing. The system for processed cheese can provide reduced stickiness, modified melt characteristics, increased firmness, structure and hot viscosity. Textureze MT systems allow manufacturers to bind meat without the need for salt and phosphate and can turn trimmings from high quality raw meat into larger sized meat blocks, allowing accurate portion control and higher value finished products. Textureze SD systems for dressings and sauces provide a rich, creamy mouthfeel and appearance while providing superior stability to low- or no-fat applications. International Specialty Products, David Ortega, 888-472-5446, dortega@ispcorp.com, foodinfo@ispcorp.com

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October 14-17, 2007 • Naples Grande Resort, Naples, Florida Mintel



Prepared Foods' 25th annual **New Products Conference** is the food & beverage industry's premier event for gaining valuable insights into exciting global new products, culinary advances and emerging consumer trends.

The **New Products Conference** provides R&D, Marketing and Corporate Management executives like you, a dynamic forum to learn from 18 world-class speakers, capture valuable new product & trend data, participate in an interactive culinary session, taste new products from around the globe, experience a live consumer focus group, capitalize on incredible networking and rejuvenate your creativity.

Sunday, October 14, 2007

12:00 - 4:00 p.m. **Everglades Adventure**
Travel the woven waterways of 10,000 islands while solitude envelopes you. You may see the snout of a manatee or the grace of dolphins swimming, birds, plants, and marine life.
Sponsored by Innophos

12:30 p.m. **Golf Tournament**
The Naples Grande golf course has challenges to put you to the test, yet it remains forgiving enough to remind you that golf is, after all, supposed to be fun.
Sponsored by Chr. Hansen

1:00-5:00 p.m. **Pre-Conference Workshops**
The Product Development Management Association's pre-conference sessions offer attendees a highly customized, intimate, learning opportunity.

pdma product development and management association

1) The Case for Building Your Innovation Budget
Lip service to innovation ends where the budget begins. Successful innovation management depends on the steady long term funding that builds a continuous flow of new ideas for your market. Funding must be matched by an informed leadership team that is both aggressive around expectations and understanding of failure. This workshop will take a hard look at strategies that succeed and strategies that doom a company to low margin slow follower status. We will look at ways to help participants build their case for their innovation budget.
Christopher W. Miller, Ph.D., NPDP, PDMA

2) Developing New Product Concepts
Responsible for developing new product concepts to fill your innovation pipeline and not sure how to get started? This workshop is a step-by-step guide for building new product concepts from task identification and idea generation through initial screening.
Andre Csapo, Director Discovery & Innovation, PDMA

3) The Creative U
Knowledge of your own creative style and creative preference is important for top performance at work or in your life. Learning tools and techniques to enhance creativity and bring creative energy into the service of your customer is the topic of this fun and exciting exploratory workshop.
Bree Gillespie, Director, Discovery & Innovation, PDMA

7:00-9:00 p.m. **Welcome Reception**
Start this year's New Products Conference with a casual networking event. Make the connections that will enhance your conference experience.
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Monday, October 15, 2007

7:30-8:30 a.m. **Breakfast Buffet**
Sponsored by Tree Top

8:30-8:45 a.m. **Opening Remarks**
Peter Havens, Group Publisher and Claudia O'Donnell, Editor-in-Chief, *Prepared Foods*

8:45-9:30 a.m. **Keynote: Convenience as Defined by the Generations: Boomer, Gen Xer and Millennial**
Speaker: Larry Wu Jr., Vice President, Consumer Strategist, Food and Beverage, Iconoculture
"Convenience" conjures up images of a speedy kitchen for consumers, but mealtime stress plays out differently for each generational consumer segment. Time is not always the primary driver, and the definition of kitchen convenience varies by age. How does this "Ready, Set, Go!" behavior differ by each generation? What is the impact on food choices, and how can these differences be applied to product development, packaging and marketing strategies? Wu's experience as R&D director with Starbucks, as well as with CH Guenther & Son, General Foods Corporation and Campbell Soup, gives him real-world experience for realistic advice.

9:30-10:00 a.m. **Understanding La Comida Latina**
Speaker: Ricardo Lopez, President, Hispanic Research Inc.
Hispanic culture revolves around food. Neighborhood selections are even based on the availability of Latino foods. This unyielding attitude affects everyone in the food industry and is changing the way America eats. However, understanding Latino food is not easy. Latinos come from some 20 different countries, each with a unique food heritage. In addition, Hispanics demand new prepared foods to go with their new American lifestyle. This presentation examines Hispanic food attitudes and addresses Latino food needs.

10:00-10:30 a.m. **Refreshment Break**
Sponsored by Flax Canada 2015

10:30-11:00 a.m. **Fads and Fundamental Changes, Tracking the American Consumer**
Speaker: Joe Derochowski, Director, NPD Group
Dining out or dining in. Snacking or sit-down meals? What do Americans think and do? Utilizing research from 30 proprietary databases and 31 years of trend tracking, a revealing look explores what, where, when and how Americans eat. Year-to-year changes in eating habits can be small but surprising, while significant changes emerge over time.

11:00-12:00 noon **Exploring Tumultuous Teens**
Facilitators: Bryan Urbick, CEO & Chairman, and Abel Westerhof, COO & Director – Consumer Knowledge Centre Ltd
Targeting the critical teen market is a challenge for food manufacturers. Many companies are resigned to lose consumers during these years in the hope that teens will again be brand loyal during adulthood. Mintel has called teens the "ignored demographic." Learn from a live teen panel discussing food and beverages in the context of their lives, what is important to them and what is not. Hear their views on shopping for food, eating in versus out, choosing brands and products, product winners and losers, and, most importantly, their reasons why. Audience participation is encouraged in an extended Q&A session.
Sponsored by IFF

12:00-1:30 p.m. **Luncheon**
Sponsored by California Raisin Board

1:45-2:30 p.m. **Obesity: A Defining Issue in Health and Wellness**
Speaker: Barb Stuckey, Executive VP of Marketing, Mattson
New products ideally address all consumer desires, from indulgence to healthy eating. With the current "obesity crisis," how can this be accomplished ethically, yet profitably? What marketing and product development tactics assist food manufacturers in finding overlooked opportunities? Primary research is unveiled providing insights on new concepts offering consumers hope, encouragement and help in weight and overall health management.

"Fascinating, I liked seeing and hearing a live panel"

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To register, contact Jenny Bogdajewicz at 630-694-4353, Bogdajewiczj@bnpmedia.com or www.PreparedFoods.com/npc



OCTOBER 14-17, 2007 Naples Grand Resort, Naples, Florida

2:30-3:00 p.m. **Refreshment Break**
Sponsored by Flax Canada 2015

3:00-3:40 p.m. **Delving into Demographics**
Speakers: Lynn Dornblaser and David Jago, Directors, GNPD Consulting Services
Consumers want what they want, but what do food manufacturers think they want? This fast-paced presentation discusses new products around the globe that are being positioned for specific demographics. What intriguing new products are for children, for women, for consumers concerned about heart health or digestive health, for those looking for familiar indulgence or searching for novel, creative new foods and beverages? Insights and information will light the creative spark in R&D and marketers alike.

3:40-5:00 p.m. **Global Product Sampling: Delivering to Consumer Niches**
Presented by: The consulting staff of the Mintel Global New Products Database (GNPD)
Sometimes listening is not enough. Tasting, touching and seeing firsthand some 70 new products launched around the world provides invaluable, impossible-to-get information. Products will be grouped by key consumer niches.

6:00-7:00 p.m. **Cocktail Reception**
Sponsored by Hormel Foods Corp.

7:00-7:30 p.m. **The Spirit of Innovation Awards Ceremony**
Join us in celebrating the industry-nominated, innovative product development teams that recently introduced a new product in foodservice and retail markets. Discover how these product development teams operate.
Sponsored by Ventura Foods

7:30-9:00 p.m. **Spirit of Innovation Dinner**
Join us for a casual buffet featuring Floridian cuisine. Relax and enjoy great food and conversation. Share your thoughts on today's sessions. Immediately following the Awards Ceremony.
Sponsored by Ventura Foods

"Excellent speakers, very interesting presentations"

"Better understanding of worldwide trends in foods and flavors"

Tuesday, October 16, 2007

7:30-8:30 a.m. **Breakfast Buffet**
Sponsored by Ocean Nutrition Canada

8:30-9:15 a.m. **Positioning "Healthy" Products for Success**
Speaker: Valerie Skala Walker, Vice President, Consumer & Shopper Insights, Information Resources, Inc.
As more prepared food products incorporate health-related benefits, it is increasingly important to understand the factors that help or hinder their success. What are some of the most successful new brands with health-related positions in the marketplace, and what are the factors contributing to that success? From the words used to describe a product's features and benefits to the dollars spent on advertising, what makes one brand outsell its rivals?

9:15-10:00 a.m. **Exploring Tumultuous Teens: Insights and Take Aways**
Speaker: Bryan Urbick, CEO & Chairman, Consumer Knowledge Centre Ltd
As a follow-up to Monday's thought-provoking panel of teens, additional insight and analysis will provide the audience a better understanding of this important and mystifying consumer segment.
Sponsored by IFF

10:00-10:30 a.m. **Refreshment Break**
Sponsored by Qualisoy

10:30-11:00 a.m. **Food and Flavor Trends Through Foodservice Operators' Eyes**
NEW
Speaker: Kevin Higar, Director Operator Product Development, Technomic
The foodservice industry is both a vital customer segment of packaged foods companies and also a source of inspiration for new product ideas. What are current and emerging food developments in this arena? What culinary trends, flavor profiles and emerging concepts are operators utilizing to satisfy loyal customers and attract new ones? What strategic consumer trends drive the menu items of today and tomorrow? Most importantly, how do prepared food suppliers help operators succeed in this dynamic environment?

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11:00-11:35 a.m. **If it Tastes Good, is it Bad?**
Speaker: Dr. Gary Beauchamp, Director, Monell Chemical Senses Center
Foods or beverages will not be consumed unless they taste good. Yet it sometimes seems as if most of what tastes good is actually bad for us--especially sugar, salt and fat. Also, what is good for us often is not so well liked, such as vegetables. These generalizations are particularly pertinent when considering children. This presentation discusses why we like and dislike what we do, how these preferences might be modified, and why recent discoveries in how our flavor sensory systems work may provide new approaches to healthy enhancement of food flavors.

11:35-12:00 noon **Collegiate Education Awards**

12:00-1:00 p.m. **Luncheon**
Sponsored by Givaudan

1:15-3:45 p.m. **Innovation Panel**
Innovation has been defined as the successful implementation of creative ideas within an organization. Through innovation, companies lift their products above commodity status to provide more profitable foods and beverages desired by consumers. What does it mean to be innovative? What are pitfalls to avoid? Which tools and opportunities can be leveraged? This accomplished panel will offer perceptive suggestions.

1:15-1:45 p.m. **Panelist 1: Lynn Gordon, President, French Meadow Bakery & Cafe**
French Meadow Bakery has nationally introduced cutting-edge, healthful and even controversial products such as Men's Bread, Healthy Hemp Bagels and Fat Flush Sprouted Tortillas. Founded in 1985, French Meadow is the longest continuously certified organic bakery in the country and has been twice named by *Bon Appetit* magazine as one of the Ten Best bread bakeries in the U.S. With an unorthodox approach, business success has followed, with Gordon being named Minnesota's Small Business Person of the Year in 2005 by the Minnesota district office of the U.S. Small Business Administration.

1:45-2:15 p.m. **Panelist 2: Jeff Bellairs, Director of the Worldwide Innovation Network, General Mills**
General Mills is building relationships with external partners that are enhancing, complementing, and accelerating innovation already taking place internally. Coined "Open Innovation", this initiative is helping the company evolve and expand its innovation efforts. General Mills has found that by leveraging new products and technologies created outside the company, it is better prepared to meet the changing demands of the marketplace.

2:15-2:45 p.m. **Refreshment Break**
Sponsored by Wild Flavors

2:45-3:15 p.m. **Panelist 3: To be announced.**

3:15-3:45 p.m. **Panel Q&A Session**

6:00-7:30 p.m. **Networking Reception**
Relax, unwind and enjoy mouth watering appetizers and thirst-quenching libations.
Sponsored by National Starch Food Innovation

7:30 p.m. **Dinner on your own.**

Wednesday, October 17, 2007

7:30-8:30 a.m. **Breakfast Buffet**
Sponsored by Mane, Inc.

8:30-10:00 a.m. **Differentiating Products with Innovative Flavor Combinations**

Interactive Tasting Session

Speakers and Facilitators: Dr. Victor A.L. Gielisse, CMC, Associate Vice President, and Ronald De Santis, Director, Continuing Education's Industry Solution Group, The Culinary Institute of America
Consumers demand variety, stimulation, authenticity and satisfaction from foods and beverages. This interactive session will demonstrate the use of ordinary ingredients to bring extraordinary results by creating flavors that entice consumers. Two great culinary educators exhibit their skills and enlighten New Product Conference attendees by providing irreplaceable knowledge through the experience of tasteful samples.

10:00-10:30 a.m. **Closing: Thank you from New Products Conference Organizers**
Grand prize drawing and more!
You could win roundtrip airfare for 2 anywhere in the US! That's not all, you'll have a chance to win other prizes too. Don't miss Mintel's Global New Products to take home.

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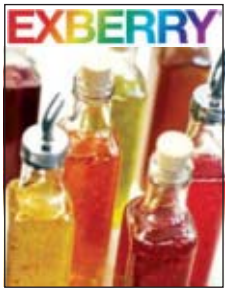
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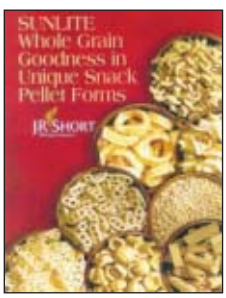
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ADM 57, 107
Advanced Food Systems **32**
Almond Board of California 13
American Egg Board 33
Anmar Nutrition NS14
Arista Industries, Inc. NS15
Bioenergy Life Science, Inc. 125
Blendex Custom Blending **24**
Blue Diamond Growers 59
Brenntag North America, Inc. 3
Briess Malt & Ingredients Co. **66**
Bunge Oils ..... **IBC**
Burke Corporation **60**
California Raisin Marketing Board 104-105
Cargill ..... **IFC-1, OBC**
Cargill Salt Division **36-37**
Cargill Texturizing Solutions **15**
Cognis 98
Colloides Naturels **34**
Comax Flavors 89
Commercial Creamery 117
Corn Products U.S. 6
Danisco Sweeteners **78-79**
Danisco USA, Inc. **72**
David Michael & Co. 86
Dow Methocel Food **74**
Edlong Dairy Flavors **91**
Enreco **17, 81**
Fancy Foods Show/NASFT 88
Flavor Dynamics, Inc. **25**
Flax Canada 2015 Inc. webcast sponsorship NS12
Flax Council of Canada 29
Food Master 131
FutureCeuticals 2
Garlic Company, The **23**
Gold Coast Ingredients **68**
Grain Processing Corp. **19**
GTC Nutrition Company 18
Hughson Nut, Inc. 96
IDF **31**
IFT 2007 Annual Meeting & Food Expo 133
Imperial Brands **10**
Innophos, Inc. (formerly Rhodia Inc.) **30**
InterHealth Nutraceuticals 28
International Flavors & Fragrances, Inc. 93
Islamic Food and Nutrition Council of America **132**
iTi tropicals NS13
J.R. Short Milling Company **100**
Jungbunzlauer **22**
Kraft Food Ingredients **82**
Lonza, Inc. **38**
Martek NS7
Marzetti Frozen Pasta, Inc. 2
McClancy Seasoning Co. **114**
MGP Ingredients, Inc. **70**
Microthermics, Inc. **71**
Multisorb Technologies, Inc. 26
National Starch Food Innovation **NS9**
Newly Weds Foods 67
Novum NS8
NutraCea 101
Orafti Active Food Ingredients **77**
Pharmachem Laboratories NS4
Pizzey's Milling & Baking **99**
***Prepared Foods'* E-Learning Center** **54**
***Prepared Foods'* New Products Conference** **134-137**
***Prepared Foods'* ProductInnovationXchange** **127**
***Prepared Foods'* R&D Applications Seminars** **108-111**
***Prepared Foods'* Spirit of Innovation Contest** **64**
Protient **94**
Purac America, Inc **85**
Roha USA LLC. 20
Roxlor International, LLC 5
RQA, Inc. 116
Sargento Foods, Inc. ..... **INSERT between pages NS10-NS11**
Savoury Systems International, Inc. **92**
Seltzer Nutritional Technologies NS2
Sensus America, LLC **80**
Solae Company, The ..... Belly Band
SunnyGem 87, 103
Takasago 90
Tate & Lyle **118-119**
Tetra Pak 16
Tree Top, Inc. **27**
United Soybean Board 63
United Soybean Board webcast sponsorship 128
Ventura Foods, LLC **21**
Wixon, Inc. 95
Worldwide Food Expo 122
Yamasa Corp. USA **120**



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See Food Master-*INGREDIENTS*, p. 17

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4-5:30 p.m. Sunday, July 29
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FOOD INNOVATION IN EUROPE: The Netherlands as role model driving regulation and health issues
4-5:30 p.m. Sunday, July 29
Location: McCormick Place S403ab

DIVERSITY AND MULTINATIONAL TEAMS IN THE FOOD INDUSTRY AND ACADEMIA:
A fashion or a real new way to operate?
2-3:30 p.m. Monday, July 30
Location: McCormick Place N427a

NEW DEVELOPMENTS IN CREATING GLUTEN-FREE FOODS AND TREATMENT OF CELIAC DISEASE
4-5:30 p.m. Monday, July 30
Location McCormick Place S501ab

CONSUMER TRENDS: Are they global or regional?
10:30 a.m.-noon Tuesday, July 31
Location: McCormick Place S404ab

THE APPLICATIONS OF NONTHERMAL PROCESSING TECHNOLOGY (PART 2): Process improvements
10:30 a.m.-noon Tuesday, July 31
Location: McCormick Place S503ab

USE OF LOW GLYCEMIC CARBOHYDRATES IN NEW PRODUCT DEVELOPMENT
Block 1: Physico-chemical and functional aspects
2-3:30 p.m. Tuesday, July 31
Location: McCormick Place N427d
Block 2: Physiological and health aspects
4-5:30 p.m. Tuesday, July 31
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